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Finding, keeping top IT workers takes smarts, but also compassion. **55**

Notebooks for execs
How can you match your personal needs to what the market has to offer? **62**

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IT calls in the SWAT team

OUTSOURCERS HELP WITH COSTLY DESKTOP UPGRADES

By Julia King

MORE USERS ARE turning away from the massive chore of updating software or replacing thousands of PCs with new technologies. Instead, they're hiring outside SWAT teams to get them over the hump — faster and for less.

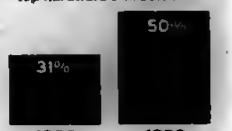
Milwaukee-based Johnson Controls, Inc. simply didn't have the information technology staff to upgrade about 7,000 users in 200 locations to standard versions of Lotus Notes and Microsoft Corp. business applications. "And we couldn't possibly hire [staff] people to do it either," said Susan Behnke, director of end-user services.

So Johnson contracted with Alternative Resources Corp. in

Outsourcers, page 84

BRING IN THE TEAM

Percentage of companies using an outside services provider to install and configure new desktop hardware and software



Base: Survey of 50 Fortune 1,000 companies

Source: Forrester Research, Inc., Cambridge, Mass.

Roy Nakabara continues to manage accounts payable and other payments at SunAmerica while also running its R/3 project

Warning: Web selling *isn't* cheap

By Sharon Machlis

RELENTLESS technology changes and soaring customer-acquisition costs are making the Web a pricier environment than many retailers first expected.

At 1-800-Flowers, Inc., executives are rethinking their strategy of offering lower service charges to customers who place orders on the World Wide Web.

"It's no longer true that [the Internet] is a less expensive way to do business," said Donna Iucalano, vice president of interactive services.

That isn't to say retailers are unhappy with electronic commerce. Benefits range from ease

Web selling, page 85

In pinch, exec leads crucial SAP rollout

▸ *SunAmerica overcoming rough project start*

By Craig Stedman
LOS ANGELES

ROY NAKABARA wasn't counting on being an SAP R/3 project manager. But that was before SunAmerica, Inc.'s first choice to run its R/3 rollout quit a month into the project.

Nakabara was next in line. And last spring, he suddenly found himself having to cope with all the pitfalls that can trip up business executives drafted to oversee packaged application project teams, from morale-busting work hours to disputes with information technology managers over resources.

Exec leads, page 84

Sun bolsters process for Java standards

By Carol Sliwa

Sun Microsystems, Inc. last week took steps to straighten out what has often been a murky and confusing path to Java standardization, outlining its plans to formalize the process during a conference call with licensees.

Those licensees, which include Hewlett-Packard Co., Microsoft Corp. and IBM, will gain a greater voice in the Java standardization process under this new plan, which Sun unveiled last week.

The licensees will be able to join working groups that will define and maintain vari-

Sun, page 85

IT LIFESTYLE SURVEY FINDS:

Long hours, cold dinners and vacation interruptus

▸ *50-hour workweeks are common*

By Julia King

DICK COLEBANK'S wife gave up years ago on the idea of cooking and eating dinner with her husband.

"She used to make meals for me, and I'd turn up two hours late. That got old real quick, so we decided to just forget it," said Colebank, who typically puts in 50 hours per week as assistant vice president of technical services at Lone Star Life Insurance Co. in Dallas.

Jeff Scherb, senior vice president and chief technology offi-

IT life, page 20

Systems analyst Jack Howarth, with his dog Dusty, takes a rare break from work

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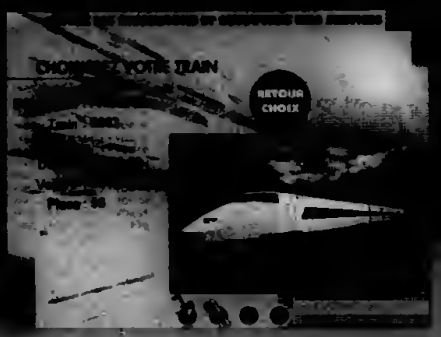

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IT [illegible] what [illegible] goes into determining their worth. **IT Careers, page 70**

[illegible] drug trials gets easier thanks to the Web, Bill McKeon says. **Internet Commerce, page 41**

[illegible] systems can be intrusive and inaccurate, but they may be right for high security needs. **Emerging Technologies, page 39**

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YEAR 2000

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New regulations may squelch fly-by-night year-2000 "experts," William Ulrich warns. **33**

Year 2000 Chronicles: 446 days out, this is your last chance to budget for it; Nabisco and others turn the problem to an advantage. **28**

Embedded systems seem clean of most Y2K problems, despite warnings. **51**

Businesses need a year 2000 strategy for customers, employees, Peter Keen writes. **60**

EXECUTIVE Briefing

News summary for senior managers

■If you want to retain valuable employees, don't just give them what they need; give them what they want. Restructure pay models to reward talent, not time served. But make organizational or cultural changes to match the new model, or it will backfire. Bad management drives people off, so training managers pays off. And nonstandard benefits are worth more than money. Employees will fend off recruiters if they think their bosses really have their interests in mind. Page 55

■Hot laptops are splitting into two factions: ultralight and ultracapable. Our reviewer thinks IBM's ThinkPad is the best of the heavier multimedia versions, which play movies on digital video disc drives and handle a road warrior's heavy demands. But Compaq's Armada 7400 also gets s nod. Lightweights are less than an inch thick — very portable — but less likely to have CD-ROM and floppy drives. Toshiba's Portege 7010CT leads here. Page 62

■Ryder's consumer truck business was sold twice, losing access to an internal IT department. It replaced the systems with up-to-date ones and hired Perot Systems to run them. But problems arose when outsourcers didn't understand the truck business. They couldn't track the trucks, and when one had a problem, they didn't know where it had been. It took a while, but the Perot staffers got onboard, even helping keep customer service up to snuff during Hurricane Georges. Page 47

■Year 2000 is more than a technology problem; it's a personal problem for IT and non-IT people, Peter G. W. Keen writes. Companies should reach out to customers and tell them how to handle problems that will creep in at the millennium change. They'll love you for it. Page 60

■Matching cancer patients with drug companies testing new treatments isn't rocket science, but today it's done mostly with paper lists. A Houston medical-management company's extranet designed to make it easier already has saved at least one life, says s doctor involved. Page 41

■Retailers are notoriously frugal about IT spending, but some find that a little high tech can pad razor-thin profit margins. Filene's Basement automates price tracking and does business over electronic data interchange. Petsmart uses SAP software to track sales and demographic data. And Office Depot's imaging/workflow system paid off in 18 months. Page 37

■We review books that map electronic-commerce strategies. *Information Rules* is a practical step-by-step guide. *Technology Leverage* uses case studies to show how technological innovations gave companies an edge and shows the value of good research and development. Other titles show how to make balanced decisions, spread ideas through a corporation and measure your company's activity to help manage it. Page 58

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COMPUTERWORLD

Feds question Cisco's discussions with rivals

By Bob Wallace

TO CISCO SYSTEMS, INC., its discussions last spring with Nortel and Lucent were strategic. But to the Federal Trade Commission, there may be cause to see violations of antitrust law.

The networking titan last week said it has been asked by the FTC "for information about discussions it had with Nortel, Inc. and Lucent [Technologies, Inc.] about partnership opportunities," according to a Cisco statement.

At issue is whether Cisco violated antitrust law in the separate talks with the two networking rivals that ended unsuccessfully. Nortel and Lucent said they aren't targets of the FTC inquiry.

"We view this inquiry as a preliminary and routine matter," said Dan Scheinman, Cisco's general counsel, in the statement. "These discussions are not a review of Cisco's business practices as a company but instead a review of talks that ended more than six months ago."

Although Cisco wouldn't discuss details of its discussions with the two rivals, Scheinman said, "Our objective in any partnership discussion is to grow new markets and service joint customers, with the ultimate goal of lowering the total cost of ownership."

The FTC declined comment on the inquiry.

A FINE, AND BLURRY, LINE

The line between alliances, partnerships, other cooperative efforts and antitrust violations is blurred. These arrangements are extremely common and frequent in the networking industry, analysts pointed out.

"Big companies *always* get together and talk about markets," said Craig Johnson, president of Pita Group, a Portland, Ore., consulting and research firm. "But exactly what and how much was talked about is what the FTC has to find. There's a fine line between good sound business practices and collusion." The FTC probably won't find anything to hit Cisco with, he added.

USC's James Wiedel: Although vendor alliances are nothing new, it wouldn't surprise him if Cisco did violate antitrust laws in its talks with Nortel and Lucent.

It's illegal when one company invites another to agree to divide markets or not compete with one another, said Howard Morse, a former assistant director of the FTC's Bureau of Competition and a partner at Drinker, Biddle and Reath in Washington. But if they propose a joint venture or propose to set standards to promote competition, it is unlikely the bureau would object, Morse said.

In talks with Lucent and Nortel, Cisco probably would have discussed ways to assault the networking market by combining its campus data networking products with either Nortel's or Lucent's backbone carrier switches, said John Morency, an analyst at Renaissance Worldwide, Inc. in Newton, Mass. "The discussions were likely more related to addressing the service provider market than they were on the enterprise user," Morency said.

Several users said they wonder what the FTC is after from Cisco.

James Wiedel, network manager at the University of Southern California in Los Angeles, said vendor alliances aren't new.

"This kind of behavior is far from unknown in the world of business. But it wouldn't surprise me if [a large company such as Cisco] violated antitrust rules," he said. News of large companies engaging in anticompetitive discussions isn't rare, Wiedel said. A Cisco spokesman declined comment, calling Wiedel's remarks speculation.

"It's vague to me what the FTC is trying to accomplish here," said Bennie Strange, a contractor at Entergy Services, Inc., a regional electric utility in Gretna, La. "Vendors announce business alliances all the time. So unless there's some real skullduggery going on, why would an investigation be launched?" □

Justice Department presses for broader scope in Microsoft case

▸ *Witnesses called to speak on Java, Apple*

By Kim S. Nash
and Patrick Thibodeau

THE U.S. DEPARTMENT of Justice said last week that forcing Microsoft Corp. to rearrange Windows and perhaps distribute Netscape Communications Corp.'s rival Web browser won't be enough to fix Microsoft's alleged bad acts.

In court papers filed in Washington, the government reserved the chance to call for "additional permanent relief" if Microsoft is found to have broken a range of antitrust laws that affect more than the browser market.

Some Microsoft critics have said that slicing the company into smaller pieces is the only way to stem its power. But a Justice Department spokeswoman declined to specify exactly what expanded remedies it might request.

Both sides also changed their witness lists last week. The government indicated it will present issues not spelled out in its original suit by calling James Gosling, the creator of Java at Sun Microsystems, Inc., and Avie Tevanian, a top engineer at Apple Computer, Inc.

To counter, Microsoft now plans to call Robert Muglia, head of tools at the company and prominent player in Sun's separate suit against Microsoft over Java, and Eric Engstrom, a multimedia manager at Microsoft.

This before the case has even been tried. In fact, on Friday U.S. District Court Judge Thomas Penfield Jackson approved a four-day delay of the trial to Oct. 19 after both sides asked for more time to finish depositions, a Justice Department spokeswoman said.

Jackson also ordered Microsoft to let government officials query its databases for Windows pricing and sales data.

The maneuvering is all part of a trial process likely to stretch several weeks beyond the four Jackson originally scheduled, legal experts said. The government accused Microsoft in May of abusing monopoly power in PC operating systems to, among other things, hinder Netscape from competing with it. Microsoft denies the charges.

Once the trial starts, both sides will voice for the court record various complaints and positions, in part to lay the groundwork for future legal moves, said Rich Gray, an antitrust and intellectual property lawyer at Bergeson, Eliopoulos, Grady and Gray LLP in San Jose, Calif.

For example, Microsoft will probably restate that it can't fully respond to the government's charges — especially newer issues raised, such as Microsoft's tactics in the Java market — with only the 12 witnesses allotted, Gray said. Then Microsoft could use that point in any appeal it may file if it loses the case.

Then look for both sides to challenge the written testimony and other evidence submitted in advance.

Microsoft has previously asked Jackson to limit the evidence the government can present, but Jackson nixed that idea, saying he would rule on admissibility as the material was presented in court.

After opening statements from both sides will come the first witnesses.

Because Jackson asked that "friendly" testimony be submitted in writing before the trial, only cross-examinations by opposing lawyers will happen live. So although the government, as plaintiff, will put on its case first, the first lawyers to question witnesses will be Microsoft's. □

POINT/COUNTERPOINT

Major allegations likely to surface at Microsoft's trial

Government's charge	Microsoft's response
Microsoft regularly abused monopoly power to force PC makers, Internet service providers and others to favor Microsoft's browser over Netscape's	Its contracts are legal, and Netscape's business problems are its own fault
Microsoft illegally coerced other vendors to drop projects that would have competed with it	It did nothing illegal, and occasional squabbles with companies are normal
Microsoft tried to collude with Netscape to divide the browser market	It did no such thing, and Netscape executives are lying

Pact opens up 'net domain registration

THE U.S. Commerce Department last week struck a deal for a "ramp-down" contract with Network Solutions, Inc. in Herndon, Va., that opens up domain name registrations to other companies next year.

Starting March 31, Network Solutions will open the fee-based registration of addresses, such as .com and .org, to other companies, with fees set by a newly created nonprofit agency.

However, Network Solutions will remain the exclusive wholesaler of those domains worldwide for an indefinite period. □

— *Matt Hamblen*

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Microsoft repackages NT pitch for developers

▸ *Will showcase Texaco overhaul at conference*

By Sharon Gaudin

ENERGY CONGLOMERATE Texaco, Inc. is overhauling its entire IT infrastructure — from E-mail to operating systems — to make it easier to distribute information and applications to 21,000 employees in 150 countries around the globe.

Microsoft Corp. will showcase Texaco and its information technology redesign at this week's Professional Developers Conference in Denver. The conference is geared toward Windows application developers.

Microsoft executives hope to use Texaco as an example of its Digital Nervous System marketing campaign — tying together communication, data analysis, storage and business applications, all with Microsoft string. The Digital Nervous System, which has the Windows NT operating system at its core, will be the focus of this week's conference, according to Microsoft spokesmen.

"In order for us to share information and applications that have been developed in, say, Kazakhstan, we've had to make changes," said Ed McDonald, chief IT architect at Texaco's Houston office. "I want applications to be available worldwide seven days after they're developed. It's been taking us closer to seven years."

McDonald said part of Texaco's problem has been a hodgepodge of systems loosely tied together. He is solving that problem by moving to an NT-based network, adding 350 to 400 NT servers worldwide. He also is replacing 13 E-mail systems to standardize on Microsoft Exchange for 18,000 end users.

READY FOR 5.0

"We're really looking forward to NT 5.0," said McDonald, who already is using a handful of NT 5.0 beta servers in nonstrategic operations. "I'm looking to NT 5.0 to simplify my environment with the Active Directory. That will give us a single flat domain."

BIG OIL PLANS

Texaco, Inc. is redesigning its computing architecture. Changes include:

- Replacing 13 E-mail systems with Microsoft Exchange
- Moving to an NT-based network and adding 350 to 400 NT servers
- Installing a straight TCP/IP system

Texaco hopes to move to NT 5.0 early next year, McDonald said. However, Microsoft hasn't released an official ship date for NT 5.0, although two Microsoft executives recently said the product should ship about a year from now.

Other developments expected at the conference include the following:

- **Microsoft** will give attendees an interim, beta release of NT 5.0 code.
- **Rational Software, Inc.** in Cupertino, Calif., will announce Development DeskTop, a suite of testing and development tools that integrate with Microsoft's Visual Studio tool suite. Rational's new tools were designed to let developers test programs earlier in the development process, potentially shortening the project's total duration. The suite will be available later this month.
- **Simware, Inc.** in Ottawa will announce the release of new versions of its Salvo Server and Salvo Impact tools, which are used to develop and deploy three-tier, component-based extranet applications. The tools will support Component Object Model and ActiveX.□

Senior writer David Orenstein contributed to this report.

Windows CE upgrade now in demo phase

▸ *Analysts, users mixed on corporate prospects*

By Matt Hamblen

AT ITS Professional Developers Conference today, Microsoft Corp. will demonstrate an upgrade for its Windows CE platform that supports larger handheld computers.

Eleven resellers are expected to support the upgrade, codenamed Jupiter, with some providing machines with nearly laptop-size color screens and larger keyboards priced at less than $1,300, Microsoft said.

Until now, Windows CE was confined to versions of clamshell-size handheld computers and wouldn't run on larger machines. It has offered access to E-mail and other calendar and contact information, but some users want a larger keyboard to send E-mail and file reports, analysts said.

Besides E-mail, the new version, called H/PC Pro Edition, gives mobile users access to the World Wide Web and corporate databases.

It will run on devices such as the Clio from Vadem, Inc. in San Jose, Calif. The Clio, which was announced last week, features a 9.4-in. color display that lets users take handwritten notes and make drawings with handwriting recognition tools.

DIFFERING OPINIONS

Analysts and users were mixed on the utility of such devices in corporate environments.

Analyst Gerry Purdy at Mobile Insights, Inc. in Mountain View, Calif., said H/PC Pro will be "an important platform for the enterprise" because businesspeople need access to corporate databases for sales presentations and other situations but may not need the computing power and disk drives of laptops.

But analyst Michael Gartenberg at Gartner Group, Inc. in Stamford, Conn., said he was skeptical.

"The problem is that CE tries to emulate a traditional computer, but it isn't running Windows 95 or 98, so the biggest market threat is any notebook running 95 or 98."

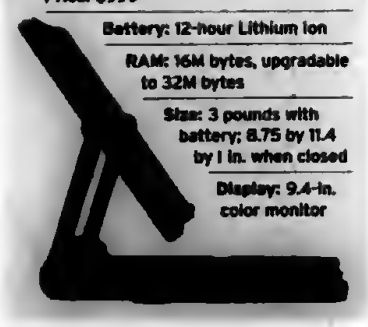
Still, Purdy predicted sales of up to 750,000 H/PC Pro machines within a year and several million in a few years.

User Peter Mojica, vice president of research at First Union National Bank Capital Markets in Charlotte, N.C., saw the Clio device and liked it. "It's very *Star Trek*-ish," he said. "It's going to be good for users who need to support E-mail and you don't want to give them a $5,000 notebook."

Tester Martin Baynes, vice president of engineering at Aspec Technology, Inc., a chip maker in Sunnyvale, Calif., said H/PC Pro let him send drawings and files to others directly.

But Baynes said he wasn't sure he wants a machine larger than a handheld because it could be intrusive at a meeting.□

VADEM INC.'S CLIO



Source: Vadem, Inc., San Jose, Calif.

Merrill Lynch names new VP

MERRILL LYNCH & CO. has named John A. McKinley Jr., chief technology and information officer at GE Capital Corp., its new senior vice president and chief technology officer.

McKinley will oversee the company's global technology strategy and a technology organization comprised of roughly 5,000 people when he joins the company this week. McKinley, who joined Stamford, Conn.-based GE Capital in 1995 after a 13-year stint at Ernst & Young LLP, spearheaded a dozen-plus electronic-commerce initiatives that helped fuel the financial services firm's torrid growth.

McKinley will report to Merrill Lynch Chairman David H. Komansky and Herbert M. Allison Jr., the company's president and chief operating officer.

— Thomas Hoffman

Veritas will buy most of Seagate's software

By Nancy Dillon

VERITAS SOFTWARE CORP. announced last week that it would acquire the lion's share of Seagate Technology, Inc.'s software business in a stock deal valued at $1.6 billion.

Based in Mountain View, Calif., Veritas makes backup and storage management software primarily for the high-end Unix market. The Seagate division it will gain, called the Network and Storage Management Group and based in Scotts Valley, Calif., makes the popular workgroup backup software Backup Exec.

SHAKY SHARES

Veritas' share price faltered after the announcement amid fears the company is paying too much for the transaction. Shares fell steeply, from 45 3/8 on Monday to a close of 26 3/16 on Tuesday. Thursday's close was 26 5/8.

Although the choice "was somewhat of a surprise, Seagate completes a lot of holes in the Veritas picture," said Sean Derrington, an analyst at Stamford, Conn.-based Meta Group, Inc. He said Seagate has strong penetration in the desktop and workgroup markets, areas where Veritas has had trouble competing.

"I think it's excellent news," said H. Walt Lee, information technology architecture project manager of the electronics division at TRW, Inc. in Redondo Beach, Calif. Lee's group uses Veritas NetBackup on the Unix side and Seagate Backup Exec for Windows NT systems.

"In my environment, Unix and NT backup are divided into two camps, and unification has been difficult," Lee said. "Eventually, if the products are integrated, we'll save money on not having to support two vendors and all their permutations."□

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Making servers talk faster

▸ *Vendors support way to speed data transfer*

By Bob Wallace

ALTEON NETWORKS, INC. and server giants Microsoft Corp., Compaq Computer Corp., IBM and Silicon Graphics, Inc. will announce support for a technology that boosts throughput between servers at next week's Networld/Interop show.

NETWORLD/ INTEROP

Jumbo Frames lets servers that have Alteon Gigabit Ethernet cards connecting them to an Alteon switch handle frames with six times more data than today's Ethernet frames. It increases throughput by processing fewer, but larger, packets.

Use of the patent-pending Alteon technology is analogous to car-pooling — more people can get through a tollbooth if many are packed in a single car, rather than if each drove a separate vehicle. Jumbo Frames initially was designed to support bulk file transfers, large file backups, clustering and synchronization of data between servers for applications such as those from The Baan Co. and SAP AG. But it can be used to link high-performance workstations to servers, too.

John Savage has tested Jumbo Frames between two servers and found they could handle 20% to 40% more data in the same amount of time.

"It's fantastic between servers, and we intend to put it to use in workstation-to-server scenarios," said Savage, computer systems senior engineer at Christopher Newport University in Newport News, Va. "I had been concerned that [Jumbo Frames] would burden the server's processor, but it didn't."

However, the technology doesn't provide performance boosts for all traffic.

"Jumbo Frames can make your network faster," said Lee Damon, systems administrator at remote wireless supplier Qualcomm, Inc. in San Diego. "But performance depends on which protocols you run. The performance improvements can be tremendous if all you use are protocols like [Network File System], which use large frames."

Support for Jumbo Frames beyond that from start-up Alteon is critical to acceptance of the technology, analysts said.

"Support from major server vendors does help Jumbo Frames and certainly should drive use of the technology," said Brendan Hannigan, an analyst at Forrester Research, Inc. in Cambridge, Mass. Complexity isn't a factor because Jumbo Frames technology is pretty straightforward, he said.

What's in store for the Jumbo Frames technology

Vendor	Plans
Compaq	Will resell Alteon's adapter card bundled with its AlphaServers running VMS and Unix, with Windows NT to follow
IBM	Will debut the $2,100 IBM Gigabit Ethernet SX PCI adapter for RS/6000 servers running AIX 4.2.1 and 4.3.2. Support for S/390 systems due in Q1 1999. Jumbo Frames support for the AS/400 is under consideration
Microsoft	Has successfully tested Jumbo Frames technology with Windows NT and Windows 98
Silicon Graphics	Will resell Alteon's adapter card, which will work with SGI's next driver release

Server vendors are doing more than just verbally supporting Jumbo Frames (see chart).

One potential drawback to Jumbo Frames is that companies can use only an Alteon switch between servers to use the technology. But Alteon officials said the company will announce at Networld/Interop an offering that eliminates that restriction.

Alteon and some of the vendors are expected to also announce that they are teaming to persuade the Institute of Electronics and Electrical Engineers, Inc. and/or the Internet Engineering Task Force to create a working group to review the technology with hopes of it eventually becoming a standard, according to a source close to the effort. □

SQL 7.0 release raises hopes for price cuts

By Stewart Deck

AFTER MONTHS of delay, Microsoft Corp. announced last week that it has settled on Nov. 16 as the release date for the new version of its SQL Server 7.0 database.

Although rival vendors alternately said SQL Server 7.0 was irrelevant for their customers or welcomed the competition, users said the new release will be good for their bottom lines whether they buy it or not.

Pricing hasn't yet been announced, but when Microsoft wants to compete, price cuts often follow. Brian Kilcourse, chief information officer at Longs Drug Stores, Inc. in Walnut Creek, Calif., said there is "no question" SQL Server's pricing will put pressure on competitors, including Oracle Corp., Informix Corp. and Sybase, Inc. "And that competition would benefit us, because anytime you can lower your operations costs it's good," Kilcourse added.

That prospect certainly pleased longtime Oracle user George McFadden, project manager at Richmond, Va.-based Helig-Meyers Co., a leading U.S. furniture retailer. "Of course we're in favor of anything that brings prices down," he said.

But Kevin McGuirk, an Oracle spokesman, said the database giant isn't planning to cut prices. Informix officials, too, said they don't plan to lower prices. "The segments we typically pursue don't see price as a primary consideration," said Steve Lanbright, director of product server marketing at Informix.

PRICE NOT A FACTOR

Similarly, Jeff Jones, a program manager at IBM's Software Solutions division, said price just isn't a primary factor for its potential DB2 Universal Database customers. "We're only competing against Microsoft on the low end," Jones explained, "and overall scalability and reliability are what people will spend a whole lot more time worrying about."

But John Ladley, a St. Louis-based analyst at consultancy Meta Group, Inc., said customers will likely see more flexibility in pricing. "While retail list prices may not change, you'll certainly see some database deals being worked out."

Users are wary of some of the difficulties that typically follow Microsoft's push into new areas. SQL Server 7.0 is a big step up from the last 6.5 version, not just a minor upgrade, they said.

"Integration problems tend to propagate any time Microsoft enters into a technological arena [because] they are notorious for playing fast and loose with standards," Kilcourse warned. □

MORE ONLINE

For resources related to SQL, including books, publications, tutorials, user groups and more, visit Computerworld online. www.computerworld.com/more

Oracle app does marketing

By Craig Stedman

THE FRONT-OFFICE push by packaged application vendors will continue this week as Oracle Corp. rounds out its new line of marketing, sales and customer service software.

Oracle, in Redwood Shores, Calif., plans to announce Version 3.0 of the Oracle Front Office software that it first shipped in January. This is the first release that can automate marketing campaigns. Other new features include World Wide Web-based sales software and a field service contract application.

Other back-office application vendors are making similar moves. For example, The Baan Co. in the Netherlands bought its way into the sales force automation market last year, and Germany's SAP AG plans to ship sales software in December and is also working on a series of marketing and customer service applications.

For users who have already invested in finance and other back-office software, the new products come with the promise of easy integration. But analysts said Oracle and its rivals still can't match the product depth of front-office vendors such as Siebel Systems, Inc. and Vantive Corp.

Oracle "has one of the broadest initiatives in this area" among the back-office vendors, said David Caruso, an analyst at AMR Research, Inc. in Boston. But even it provides only "a small slice" of the functionality needed by marketing, sales and service departments, he said.

Mark Barrenechea, vice president of front-office applications at Oracle, said more depth will be added to the software in future releases. But he said Version 3.0, which is due to ship this quarter, gives Oracle a full allotment of front-office modules. □

Gartner start-up to target HR

This week at its USA Symposium/IT Expo in Orlando, Fla., research firm Gartner Group, Inc., based in Stamford, Conn., will announce that it is funding and partnering with a start-up company that will specialize in human resources consulting for information technology.

Peoplej, Inc.'s services will include retention consulting, leadership assessment, compensation consulting and executive coaching.

The firm will be based in Somerset, N.J., and will be headed by Linda Pittenger, former vice president of The Hay Group, an IT consultancy, and former chief information officer of AT&T Corp.'s sales and marketing systems.

— Barb Cole-Gomolski

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EARTHWEB
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Programmer donates kidney to 'best boss'

▸ *Project manager is off dialysis; didn't take offer seriously*

By Tom Diederich

NANCY NEARING'S boss was always there when she needed him, so when the 42-year-old computer programmer learned that her project manager needed a kidney transplant, she gave him one of hers.

Art Helms of Alexandria, Va., heads an informal group of a dozen or so contract programmers and technical writers working on Washington-based government projects. Nearing joined the team in 1992.

Nearing, who works part time, said Helms is a friend and the "best boss" she has had in the past 20 years, but "he's not a particularly close friend, oddly enough. It just really hit me hard that he was that sick, and there was a very real chance he could die," she said.

Helms, 49, has battled hereditary and incurable polycystic kidney disease since 1981 and for the past three and a half years has needed regular dialysis treatments to stay alive. Healthy kidneys are fist-size and weigh about 3 pounds. By July 14, when his kidneys had to be removed, Helms said, they were as big as footballs and weighed 25 pounds each. "They looked like alien creatures," he said.

Without a living donor, Helms faced a three- to five-year wait for a cadaver organ. Meantime, with no kidneys to collect waste and secrete urine, anything he drank had to be removed through dialysis. "A big bottle of Coke would probably have killed me at that point," Helms said.

Nearing, who lives in Arlington, Va., said she initially approached Helms a few days before his kidneys were removed. "It was a real nice gesture and all, but I didn't think she was serious," he said. Nearing was persistent, however, and after fluid overload caused Helms two bouts of congestive heart failure in mid-August, he finally agreed.

Nearing told Helms she basically wanted to keep the team together. "She also said my being her manager makes her life easier," he added with a chuckle. "And that's really the only explanation I've ever got."

WRING HANDS OR ACT?

"The night my husband, Steve, and I decided that we'd go for it, we concluded that there were two options: You could sit on the sidelines and wring your hands and say, 'Gee, that's too bad he's so sick,' or you could do something. And I really couldn't sit and watch him die," Nearing said.

In fact, Nearing's husband said he was ready to donate one of his own kidneys, but after medical tests Nancy turned out to be a perfect donor candidate.

The operation took place Sept. 10. It was a low-impact procedure that used a tiny video camera and had Nancy back on the job 10 days later.

Helms said he would be at his desk by Oct. 13.

No longer bound by dialysis, he is free to eat and drink what he pleases. The only negative is that he must take a "shopping bag" of antirejection drugs every day, he said.

Nearing has no regrets. "It's kind of an honor, you know? It still boggles my mind that his current state of health is due to me," she said. "It's definitely the strangest and most wonderful work-related thing I've ever done."□

Forté

APPLICATION Servers

FRANKLY SPEAKING

Dangerous Web data

FRANK HAYES

WHAT HARM could there be in stockpiling the data you collect from customers on the Web? After all, gathering that data is easy. Figuring out how to use it effectively is hard. Until you do, what could be wrong with just letting it pile up?

Plenty, it turns out. But according to a front-page story in last week's *Computerworld*, even big, marketing-savvy Web merchants — record clubs, bookstores, outfits that live or die on marketing — are collecting lots of data and not using it.

For IS people, collecting and storing data is as natural as breathing. But today — with Web data — that spells trouble.

For one thing, Web privacy has become a hot-button topic for politicians and consumer advocates — and there you are, collecting a lot of private customer information, without asking or telling. For another, customer data can go stale — and a lot of rotting information could really stink up your company's online marketing efforts.

You need some decisions on how that data is going to be collected, protected and used. And you need those decisions now.

The data we're stockpiling and not using won't be valid forever.

One big reason is the very real risk of government regulation. The Commerce Department started warning early last year that if Web merchants don't voluntarily tell consumers how their data will be used, Commerce will make rules.

And more than 40 Internet privacy laws are kicking around Congress this term. One even made it out of the Senate Commerce Committee this month. It won't be the last.

So while we're collecting truckloads of customer data via the Web — but not using it — we're attracting trouble from the government but not getting much value from the data.

It gets worse. The data we're stockpiling and not using is marketing data — snapshots of customer whims in narrow slices of time.

But those snapshots may not remain valid. Customers change — their minds, their buying habits, their preferences. Six months from now, a customer may decide she hates the product she's raving about today. Another customer may lose interest in whatever fad compelled him to buy an item in the first place.

That means your stale data may not just be useless once you finally tap it. It also may irritate customers if you try pushing their no-longer-favorites on them — or even drive them away. Any more bad news? Just this: Even though it's your IS shop's job to gather and process that data, and even though it's clearly time to make some tough decisions on Web data, those decisions aren't yours to make. They'll have to be made by people outside the IS department. But as keepers of data and technology, you still have to persuade them to make those decisions — and soon.

You've got to get serious answers from your marketing department about plans for using customer data internally. Do they want to mine the data offline, or use it for one-to-one marketing in real time? There are technical issues, budget issues, strategic issues. The decisions are hard. But they've got to be made soon.

Do you have an Internet privacy and data use policy? Is it published? Should it be? That's your legal department's bailiwick. Make sure they understand that both Congress and the Commerce Department are gearing up for Web privacy regulation. They need to act now.

And if your company plans to sell or swap customer data with anyone else, that decision must be kicked way upstairs. That's a corporate policy issue, and management must sign off on it.

Until they do, piling up that data means nothing but trouble. □

Hayes is Computerworld's staff columnist. His Internet address is frank_hayes@cw.com.

SHORTS

Microsoft browser edges ahead

An exclusive *Computerworld* survey shows that though Netscape Communications Corp. and Microsoft Corp. may be neck-and-neck in the browser mind-share wars — with Netscape holding a slim 49.8% to 47.5% lead — those figures could change radically by next year at this time. Results from the poll of about 200 information technology managers with budgets of more than $1 million and more than 500 employees whose equipment purchases they influence showed that 57.5% expect Microsoft will be their primary browser vendor 12 months from now, and just 39.9% expect it will be Netscape.

Y2K subpoenas possible

The U.S. Senate may use its subpoena power to force companies to testify about their year 2000 problem. Sen. Bob Bennett (R-Utah) raised that possibility at a hearing last week by the Senate special committee investigating the impact of the date glitch on various industries, such as transportation, utilities and health care. The threat came after the committee failed to get food industry companies to testify at the hearing.

Inacom to acquire Vanstar

Inacom Corp. is acquiring Vanstar Corp. in a $480 million stock swap that will create a huge global distributor for some of the world's top computer vendors. Vanstar shareholders will receive, tax free, 0.64 shares of Inacom common stock for each share of Vanstar common stock. The deal will be accounted for as a pooling of interests, the companies said today in a statement.

Inacom anticipates a pre-tax charge of $120 million to $135 million related to the merger. Inacom is a global technology management services company. Vanstar handles consulting, product and support services for network infrastructures of Fortune 1,000 and other companies. The deal is subject to approval by the Federal Regulatory Commission and shareholders of both companies. The acquisition is expected to be completed by the fourth quarter of this year or early next year.

Book giants in 'net deal

German media giant Bertelsmann AG is buying 50% of Barnesandnoble.com for $200 million, postponing the planned public stock offering for Barnes & Noble, Inc.'s online bookstore, the companies said last week.

Meanwhile, two top online music stores last week confirmed that they are in discussions following press reports of a planned merger. The move by CDnow, Inc. in Jenkintown, Pa., and N2K, Inc. in New York is seen as a response to World Wide Web powerhouse Amazon.com, Inc.'s move into the music-selling business.

HP to license Sun technology

Hewlett-Packard Co. last week became the first company to say it will license Sun Microsystems, Inc.'s performance-boosting HotSpot technology and Java Development Kit 1.2. Last week's deal applies only to HP's Unix operating system — not the embedded systems (such as printers) for which HP has developed its own virtual machine to interpret the Java code. HP will unveil a new version of its virtual machine for embedded devices next month, an HP official said.

Holidays will be happy online

Online retailers should post $3.5 billion to $4 billion in sales during the all-important fourth quarter this year — perhaps triple last year's tally, according to a survey of more than 100 electronic-commerce sites that is to be released next month. Preliminary results of the study, conducted by Boston Consulting Group's Toronto office, were released last week.

Informix buys Red Brick

Informix Corp. has signed a deal to acquire data warehousing toolmaker Red Brick Systems, Inc. for $35 million. Under the terms of the deal, each share of Red Brick stock will be exchanged for 0.6 shares of Informix stock. Red Brick's product line will be blended in to the Informix Decision Frontier data warehousing products.

SHORT TAKES The U.S. Senate passed the Internet Tax Freedom Act on a vote of 96-2, following unanimous passage by the House of a similar bill in June. Lawmakers promised quick reconciliation, and President Clinton is expected to sign the measure. ... Lotus Development Corp. officials last week confirmed that some of the 45 job cuts announced two weeks ago (CW, Oct. 5) were in its ESuite division, but they said the company remains committed to the product line. ... An Illinois appellate court last week upheld last year's ruling by a circuit court judge that Novell, Inc.'s use of the term "engineer" in its certification titles doesn't violate the state's professional engineering laws. ... SAP AG's growth rate moderated in the third quarter, as predicted. The company last week said it expects to report a 45% increase in third-quarter revenue, due Oct. 20. ... Dell Computer Corp. CEO Michael Dell said last week he sees Windows NT workstation adoption — along with sales in China, Latin America and Europe — fueling the PC industry's growth in spite of the slowdown in PC sales this year.

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Data warehousing demand puts premium on designers

▸ *Experts sought to harvest business value from database applications*

By Barb Cole-Gomolski and Stewart Deck

THE SAME labor crunch that hit database administrators last year is now hitting a related career field: database designers.

With the growing popularity of data warehousing and intranets, demand for database designers is soaring, according to recruiters and information technology managers.

Database designers, who may also be called data modelers or data warehouse designers, figure out where information in a database will come from, how it will be stored and how it will be used in applications. Observers said a designer's work has a significant impact on whether a business application yields useful information or junk.

Brian Kilcourse, chief information officer at Longs Drug Stores, Inc. in Walnut Creek, Calif., said database designers are "absolutely in short supply."

"We look for someone with experience in the retail industry and with the tool sets we're using, and then we can train them in-house," Kilcourse said, "because finding an exact skills match is rare."

Anne Marie Smith, manager of data administration at Rosenbluth International, Inc. a travel management company in Philadelphia, said she has received four recruitment calls in the past week. "These companies [that are calling] are in turmoil because they either want to build a data warehouse — but don't have the expertise in-house — or they have built it and aren't getting usable information out of it," she said.

During her nearly 20-year career, Smith has seen her specialty go from obscurity to high demand. She said experienced database designers can command $75 to $200 per hour, about the same as a senior database administrator.

"Two years ago, rates for database designers were only 60% or 70% of a [database administrator's] salary," she said.

A. J. Tavares, an account executive at RHI Consulting, Inc. in San Diego, said his company, which places contract workers, is seeing high demand for database designers.

Companies are turning to personnel contractors because either they have a short-term assignment or they can't find a permanent employee, he said.

Adding to the problem is the fact that there "aren't a lot of good training programs for database designers," said Tom Samson, president of Technology Exchange Networks, Inc., a Coppell, Texas-based IS consulting firm. "It's not like you can put someone through a course that takes a couple weeks," Samson said. It requires working under the tutelage of an expert, he said.

Smith agreed and said that she designed and implemented a training program at a former employer's site that was very successful. "I took six underwriters who were being [laid off] and put them through a 12-week course," she said. Another option is to hire an experienced consultant to mentor beginners in the field, she said.

George McFadden, project manager at Richmond, Va.-based Helig-Meyers Co., a major furniture retailer, said experience with computer-aided software engineering (CASE) tools is a good prerequisite for database designers.

"Systems that are successful over time don't just start with code, they are modeled. And when you work with CASE tools, you're forced to design from the start," McFadden said. □

WHERE'S EVERYBODY?

How companies can fill their database design positions

- Use temporary staffing firms
- Run in-house boot camps to retrain existing employees
- Hire outside designers to mentor existing IS staffers

Baan, PeopleSoft to add app interfaces

By Craig Stedman

SAP AG'S INTERFACES for tying other applications to its R/3 business software are starting to attract the sincerest form of flattery: imitation.

The Baan Co. and PeopleSoft, Inc., two of SAP's top rivals, this week plan to announce their own sets of application programming interfaces (API) aimed at making the process of integrating their products with homegrown and third-party software less of a development ordeal for users.

The actions by Baan and PeopleSoft mimic the API strategy that SAP launched two years ago for its market-leading R/3 suite, analysts said. And like SAP, Baan in particular has a more selfish goal in mind: to use the APIs internally to tie together its own growing mix of applications.

Several users said they are waiting for that kind of integration from Baan, which needs to hook its flagship back-office software to applications it has bought for uses such as supply-chain planning.

"One of the problems we've had is integrating anything into Baan," said Keith Bearden, chief information officer at A-dec, Inc. in Newberg, Ore. For example, the dental equipment maker had to write a custom interface this summer to tie in third-party distribution software.

The interface work took almost two months "for just a small amount of data," Bearden said. "With a standard API, we could have got it up and running in a week."

He added that A-dec hopes not to have to repeat that process next year, when it plans to deploy the Aurum sales force automation software that Baan bought a year ago.

TIGHTER TIES

Penwest Pharmaceuticals Co. is in a similar position. The Patterson, N.Y., company went live with Baan's finance and manufacturing applications in January and now wants to install laboratory software that the Dutch vendor has added to its portfolio.

But Penwest, which makes powders and time-release formulations used in pills, is waiting for Baan to tighten the ties between the products.

"One of the deterrents has been that you have to integrate those things yourself now," said Geoff Griebel, director of information technology at Penwest. "That's exactly the hard part."

Don Drury, vice president of BaanSeries product marketing at Baan's U.S. headquarters in Reston, Va., confirmed that an initial set of about 200 APIs will be announced at this week's BaanWorld conference in the Netherlands. The company also will release a tool kit for users and third-party companies that want to work with the interfaces, he said.

PeopleSoft officials wouldn't comment in detail but confirmed that the Pleasanton, Calif., company will announce a strategy that includes definitions of "application integration points," plus implementation services aimed at users who want to hook other products to its software.

SAP has already released 400 APIs for R/3 and expects to increase that to 1,000 when R/3 4.5 ships next year. Rivals such as Baan and PeopleSoft "can't afford to let [SAP's interfaces] become the de facto standard for how you pull applications together," said Jim Shepherd, an analyst at AMR Research, Inc. in Boston. □

HARD CHOICES

Make sure you know the pitfalls before integrating applications

METHOD	DRAWBACKS
Writing custom interfaces	Requires use of low-level procedural code
	Imposes maintenance burden on users
Using vendor-supplied APIs	Only recently announced by some vendors
	Limited sets of APIs are available
Using packaged integration software	Most products aren't widely used yet
	Technology still needs to mature

Product management changes at Baan

There's more to the technology agenda than APIs at this week's European BaanWorld conference. Sources said Baan also plans to announce an AS/400 version of its back-office software and a set of decision-support products.

But analysts said perhaps the most important thing Baan needs to do is get the spotlight off the management changes and financial dealings that have been in the public eye since the spring.

Former CEO Jan Baan stepped away from a hands-on management role at the company in July. And the Dutch company was pressured by Wall Street to give up ownership interests in several resellers and to distance itself from an investment firm run by the Baan family.

Baan doesn't appear to be in any financial trouble, said Joshua Greenbaum, an independent analyst in Berkeley, Calif.

But he said Baan is going through both management and product transitions as it focuses more on midsize users and builds a component architecture to unite its applications.

— Craig Stedman

hp and j.d. edwards = adaptability

JDEdwards

HP CEO returns to customer focus

▸ *Lew Platt talks about company's recent stumble and plans for revival*

Hewlett-Packard Co. is wrestling with dragons on every front these days: layoffs, revenue shortfalls, questions about its Unix commitment, fears about its move to the 64-bit IA-64 chip architecture being developed with Intel Corp. and confusion over its Internet and electronic-commerce strategies.

In an interview with Computerworld executive editor Maryfran Johnson, HP CEO Lew Platt said the Palo Alto, Calif., company has most elements in place for renewed success. A more focused message to customers and fine-tuning on expenses in the wake of lost overseas revenue will alleviate most of the company's problems, he said. Excerpts follow.

HP CEO Lew Platt on the move to IA-64 and 64-bit Unix: "It's up to us to prove that indeed this isn't going to be as painful as people think it is"

On HP's series of unclear Internet strategies:
At no time have we really had a coherent, widely agreed-upon Internet strategy. [But] we've done a lot of very good elements of what one needs in E-commerce. We've really done a lot around the whole electronic-payment infrastructure. We've done a lot of work around building and managing the networks. But we have to package what we have in a way that it's comprehensible to customers.

On the move to IA-64 and 64-bit Unix:
It's up to us to prove that indeed this isn't going to be as painful as people think it is. [We have committed that our 64-bit products will] run current Wintel software and current HP-UX programs — without having to rework the applications. Though if you want to get maximum performance out of the new architecture, you are going to have to rework your applications. [And] when the hardware rolls out, many of the leading applications will have been recompiled and tuned.

On HP's commitment to Unix:
I hope it's pretty clear now that we're not leaving the Unix business. We've pretty much overhauled the [Unix] hardware product line. We can be a strong NT player and a strong Unix player, too.

And since we're driving, with Intel, the convergence of the hardware around the single hardware platform [the IA-64 chip], I believe the only sensible position for our company is to offer both. Customers want both.

On handling HP's revenue problems:
[Because of the global economic slowdown this year,] our revenue growth dropped off, and as that happens you have to bring the expense growth down. HP had done a really good job of penetrating some international markets — places like Indonesia, [South] Korea, Russia and Latin America. But some of those economies have literally tanked, and our business has gone to zero in some of those places.

[Internally, the problem is[. How do we coordinate our capability and deliver it to customers in a much clearer way? Most of that has to do with bringing new capability to market. In some cases, it means just promoting ourselves a bit more effectively.

Also this year we've started up some incubator activities, and they represent totally new business opportunities for HP. I won't talk about them yet, though. □

Users laud IBM plans to tighten AS/400, NT link

By Jaikumar Vijayan
ANAHEIM, CALIF.

IBM'S EFFORTS to build better Windows NT integration into the AS/400 drew keen attention from users here last week at the Common trade show.

Although persuading the faithful to try new applications on the AS/400 still ranks high on IBM's agenda, its attention to NT struck a chord with many customers.

Tight integration with NT provides smoother access to AS/400 database information and a chance to lower administration costs in mixed NT and AS/400 environments, said Matt Clayton, a programmer/analyst at Agri Beef Co. in Boise, Idaho.

Agri Beef plans to eventually have NT servers running most of the company's applications, with AS/400 servers handling the database.

"Integration with Windows NT ranks right after the year 2000 problem as the most important issue for most AS/400 shops today," said Joe Clabby, an analyst at Aberdeen Group, Inc. in Boston.

MAKING PLANS

In the past 18 months, IBM has announced a series of steps aimed at making the AS/400 more NT-friendly. The company's PC-on-a-card option, for instance, lets users run Windows NT Server within an AS/400 box. The company also has a slew of software technologies — such as Client Access for AS/400, NetFinity for AS/400 and IBM MQSeries middleware — that let users exchange and manage data between the two environments.

Desmonds Formal Wear in La Crosse, Wis., is considering moving many of its office applications from OS/2 to Windows NT servers.

The company runs its main plant and order-processing applications on AS/400 servers today. Scott Kulas, a programmer at the company, was at Common looking over Java technologies to help build a more user-friendly graphical user interface for the AS/400 applications. "We are trying to see how feasible it is to [move some of the office productivity applications] to the integrated PC option on the AS/400," Kulas said.

Similarly, NT integration is an issue at Carter Horner, Inc., a Montreal-based pharmaceutical company that runs both NT and AS/400 servers. But the company isn't ready yet to consider running NT within its AS/400 servers. "All of our operations data is on the AS/400. I am not ready to put NT in the same [box]," because of reliability concerns, said Mario Tkalec, director of information technology at Carter. □

No surprises at Digital user confab

▸ *Users supportive of pledged Compaq support*

By Jaikumar Vijayan
LOS ANGELES

USERS AT THE Digital Equipment Computer User Society (DECUS) conference here last week gave a nod of approval to Compaq Computer Corp.'s plans for core Digital Equipment Corp. technologies it acquired, namely OpenVMS, Alpha and Digital Unix.

But a lot depends on how well Compaq delivers on its promises, they warned.

"If you listen to the hype and you believe it, everything looks great," said Tom Inghram, an information systems analyst at Siemens Building Technologies, Inc. in Buffalo Grove, Ill.

Continuity and support for most technologies and services it acquired from Digital in May were the two messages Compaq pounded home in its first major meeting with Digital's North American customers (see chart).

Key Compaq executives stressed that Digital's technologies, along with those from the earlier acquisition of Tandem Computer Systems, Inc., constitute the entire core of the company's enterprise strategy.

From Tandem, Compaq added fault-tolerant products such as the Non-Stop Kernel operating environment and Himalaya servers.

POSITIVE GESTURES

Compaq plans to standardize on Digital's Alpha chip for all of its highest-end server hardware, including the Himalaya servers. Those systems currently are based on the MIPS RISC architecture.

In a show of commitment to OpenVMS, Compaq last week rolled out the latest version of the operating system. The company also announced a new server partitioning technology called Galaxy Software Architecture [CW, Oct. 5].

On the Unix front, Compaq will standardize on 64-bit Digital Unix at the high end.

Such moves are a step in the right direction, but the company will have an uphill climb in the Unix space, where rivals Sun Microsystems, Inc. and Hewlett-Packard Co. enjoy large market share and mind share, said Joseph Pollizzi, former DECUS president and deputy head of science and engineering systems at the Space Telescope Science Institute in Baltimore.

"Compaq really has to take a look at where they are in the Unix market," agreed Claus Pfeffer, computing services manager at Volkswagen of America in Auburn Hills, Mich. "Most software vendors today write for all of the other forms of Unix first before they get to Digital Unix." □

Digital technologies under Compaq's rule

	At time of merger	Now
PCs, notebooks	Voted most likely to disappear in a year	No change
Alpha	Uncertain future	Compaq will support it fully, standardizing on its highest-end servers
OpenVMS	No major upgrades expected	Just announced Version 7.2 and Galaxy Software Architecture
Digital Unix	Uncertain future	Compaq's standard Unix at the high-end

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The IT life: Long hours, cold dinners

CONTINUED FROM PAGE 1

cer at The Tribune Co., usually is in his Chicago office by 7 a.m., after already having worked 45 minutes or so during his train ride into the city. He tries to leave work in time to tuck in his three kids at night — on days when he isn't traveling.

"I don't even have any concept of how many hours a week I work, but it hasn't been 40 in a long time," Scherb said.

Scherb's long hours are by no means the exception. On average, information technology professionals work 50 hours per week. Almost half (47%) work an average of six hours on Saturdays and Sundays, according to a *Computerworld* survey of 250 IT professionals.

Seven out of 10 IT professionals have worked while sick. The same number have bailed out of family affairs and other social activities because of work.

And 51% of the surveyed IT workers said they "occasionally" miss getting home for dinner; 28% said "frequently."

IDEALISM . . . GET REAL

Moreover, anecdotal information indicates that Generation Xers have the same long hours, even though they joined IT's ranks with grand notions of "having a life" outside of work.

"It was an idealistic vision that generation had," said Brian Hoffman, an IT recruiter at Winter, Wyman & Co. in Boston. But once on the job, reality sets in.

"They find they need to be available more than 40 hours because a user they need to catch up with isn't available until after 6. Or they may need to wait until after the end of the day to get test time on a certain computer. There are so many things that necessitate more than the standard workweek," Hoffman said.

Chief among those, professionals said, is the ever-increasing complexity of technology itself. As hardware prices decline, individual groups within companies are more frequently buying and implementing systems for department-specific tasks. It is up to the IT department to make the hodgepodge of chips, wires and software work together, a job that often can be technically challenging and always is time-consuming, workers said.

"It's gotten worse over the past few years [because] everything has to interface with everything else," said Jack Howarth, a systems analyst at Dresser-Rand Co., an oil industry equipment manufacturer in Broken Arrow, Okla.

"Now, it's more than writing a program to produce a report. It's writing a program to access 14 different systems to produce a report," he said.

As a result of that complexity, Howarth spends more time working than he ever did before, often forgoing even weekend leisure activities such as attending a car show.

"I can't remember the last time I actually did some enjoyable reading, like a novel. I can't remember the last time I went to a movie, either," Howarth said.

In August, a peak vacation month at many companies, Howarth worked his usual five days plus three out of five Saturdays. When he does go on vacation, he does what his colleagues do: keeps his destination — even if it is no farther away than his backyard — a closely guarded secret.

"People cover themselves by saying they're going out of town because they know if they do vacation in town, they'll be called if something goes wrong," Howarth said.

On the other side of the coin are the 61% of IT professionals who interrupt their vacations to call and check on things at work. About half of the people surveyed said they work while on vacation, and 25% bring along a laptop computer, pager or cellular phone to keep in touch with the office.

Some professionals, such as Steve Frick, a systems analyst at restaurant equipment manufacturer Delfield Co. in Mount Pleasant, Mich., also regularly work on holidays, but it is out of necessity more than anything else.

This year, for example, Frick had planned to take a long weekend to spend with his family. But instead, he will be converting the company's systems to a newer version of manufacturing software that is year 2000-compliant. Four weeks later — during the Christmas holiday when production is once again shut down — he will be back at work testing the new software.

Working long hours, especially on holidays, "causes a lot of tension in the family," Frick said. "One of my co-workers and I were just talking about that. He said he regrets how many Christmases he has worked and that he knows his wife is going to be upset with him again [this year]."

Many are changing jobs in hopes of reducing the number of hours they work. But that, too, is unrealistic, Hoffman said.

"Companies will promise it's a 37-3/4-hour workweek, and then comes the caveat that hours may run longer on a project-by-project basis," he said. "Then you find out that the projects are six months long, and you're living at the office."

At Lone Star, Colebank uses some unofficial flexibility to compensate his IT staff for its long working hours.

"We don't officially have a direct compensation for all hours worked, so if they work Saturdays or Sundays, I give them time off somewhere else," he said.

"The benefit of the long hours is actually a more relaxed environment," Colebank said. "If they have something to do during the week, like a doctor's appointment, they can do it."

A LITTLE UNDERSTANDING

Some pioneering companies are trying new approaches that may provide some relief to IT workers in the future. One approach is long-term "time banking," said Ken Prager, an organizational expert at Riverton Management Consulting Group in Palmyra, N.J.

Under that scenario, workers from year to year bank extra hours they work plus sick days and vacation time they didn't use. Employees could use that time later to, say, care for an ailing parent, Prager said.

Still other companies, such as Acacia Life Insurance Co. in New York, are building on-site meditation rooms where IT workers can go to relieve stress during working hours.

"This is a very new thing," said Carole D. Stovall, a Washington psychologist and specialist in workplace stress. "But slowly, more companies are setting up situations where workers can take that very important break every hour — away from the computer screen," Stovall said.

"The more hours you work, the less productive you'll be," she added. "You end up in a downward spiral, plus you make more mistakes, so it's very costly to constantly walk around with a high stress level."

Recruiters report that a handful of companies also are beginning to pay salaried IT workers a pro-rated hourly rate — but not a time-and-a-half overtime rate — for every hour they work beyond 40.

Some relief for harried IT workers would seem in order. "I am on call 24 hours a day," one IT professional said in the confidential survey. "So I leave town and go to a cabin with no electricity to take a break." □

IT lifestyle indicators

On average, IT professionals go to bed at 11 p.m. and get 6.4 hours of sleep per night
20% are night owls who usually retire after midnight
57% haven't read a book of fiction in three months
45% don't read a newspaper every day

IT workers on vacation

61% interrupt a vacation to call in to work
50% have worked during a vacation
35% take a laptop or a handheld computer
26% take a cellular telephone
25% take a pager
29% have forfeited earned vacation days they couldn't use

Base: Survey of 250 IT professionals at U.S. businesses with 100 or more employees

Source: Computerworld Information Management Group, Framingham, Mass.

Drawing the line

Plenty of IT professionals have worked while sick, and they have even canceled vacations due to backbreaking workloads. But they seem to draw the line when kids enter the picture.

Six out of 10 workers said they won't miss their children's events because of work, *Computerworld*'s survey found.

Among those is Mike Rogers, a senior business systems analyst at United Airlines in San Francisco. Last week, Rogers called his boss to reschedule a November training session because it conflicts with his sixth-grade daughter's school field trip.

"I have walked out of meetings because of school events," Rogers said. "The first time I did it, people said 'you can't do that,' but I went ahead and did it anyway."

Then, the next day, "a lot of people gave me positive reinforcement. They said it was admirable that I put my family ahead of my job," he said.

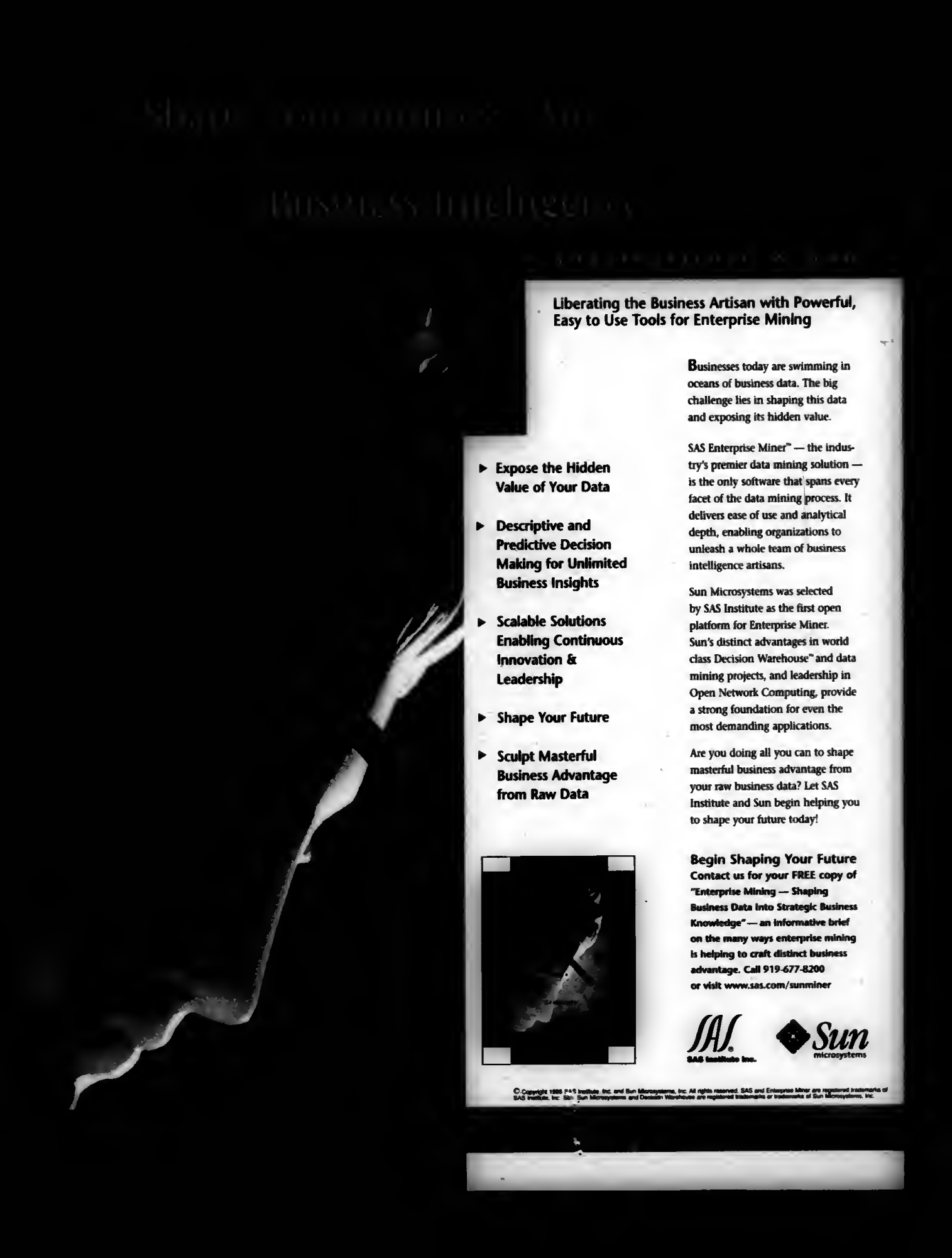
But anecdotal evidence indicates that spouses don't get the scheduling consideration kids do.

"There are certain things, like my job, that I don't let interfere with my kids. It does, however, affect my relationship with my wife," said one computer systems specialist in the survey.

Work demands are the cause of arguments between Adam Cain, a programmer analyst at Atlanta-based Trax, Inc., and his wife, a credit clerk, who works regular 9-to-5 hours.

"I've missed my wife's birthday, and I've missed a couple of vacations," Cain said. He has to travel out of town three or four times per month. "We usually end up getting into an argument on the phone after I've been out of town a day or two," he said.

— Julie King



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Who's watching your network

Big outsourcer to offer customer management tool

▸ *EDS joins growing market with Chordiant alliance*

By Robert L. Scheier

IF A CUSTOMER with $2 million in assets calls a bank to ask about a home equity loan, the bank wants to steer him to its very best mortgage broker.

But if a customer has only $100 in his account and has just declared bankruptcy, the bank will let him talk to a low-paid temp.

That's the idea behind customer relationship management, a market estimated to grow to $2 billion this year and to nearly $3.5 billion by 2001.

To tap that demand, Electronic Data Systems Corp. (EDS), the $15 billion systems integrator and outsourcer, is teaming up with a 100-person software company in order to offer large companies a better way to track and serve their customers.

Under the alliance announced last week, Centrobe, a business unit within EDS, will link its dbIntellect data mining tools to Chordiant Software, Inc.'s Customer Communications Solution software.

Chordiant's software integrates activities such as customer profiling, managing telemarketing campaigns and even billing and transaction processing.

With precise knowledge of customers when they call in, a customer management system can prompt sales representatives to offer customers certain products and determine the speed and quality of the service the customers receive.

Chordiant software's object-oriented design provides "a flexible call center infrastructure" that would allow the company to provide new services to travelers in the future.
– Peter Maddigan
Thomas Cook Global Services

Thomas Cook Global Services in Peterborough, England, chose Chordiant software because its object-oriented design provided "a flexible call center infrastructure" that would allow the travel services company to provide new services to travelers in the future, said Peter Maddigan, head of systems programs.

He explained that Chordiant's object-oriented design makes it relatively easy to link the application to Thomas Cook's legacy systems.

SETTING ITS SIGHTS

Along with providing its data mining tools, EDS' Centrobe will do systems integration and business consulting for target customers, which are large companies in the financial services and telecommunications fields, company officials said. A typical implementation, involving at least 250 seats, will cost customers between $5 million and $25 million.

The market is attractive enough that IBM has created an independent software unit to specifically focus on it [CW, Aug. 18]. Chordiant, based in Palo Alto, Calif., earlier this year announced a similar joint development and marketing agreement with MCI Systemhouse, which is the systems integration unit of MCI WorldCom, Inc.

A single vendor that takes responsibility for an entire project can eliminate finger-pointing among vendors, said Bill Doucette, vice president of Further Inspection, Inc., a Schaumburg, Ill., firm that provides testing for call center systems. □

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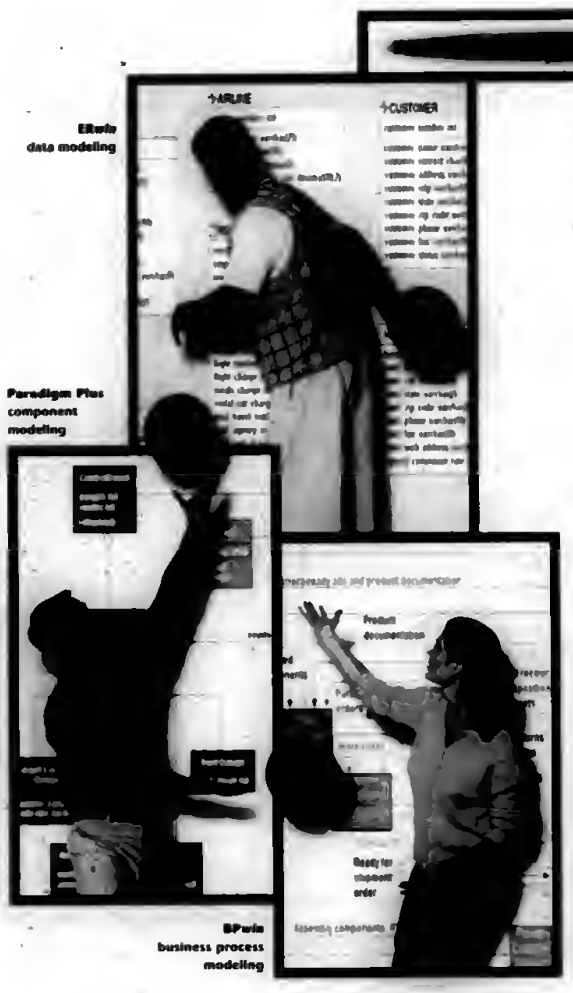

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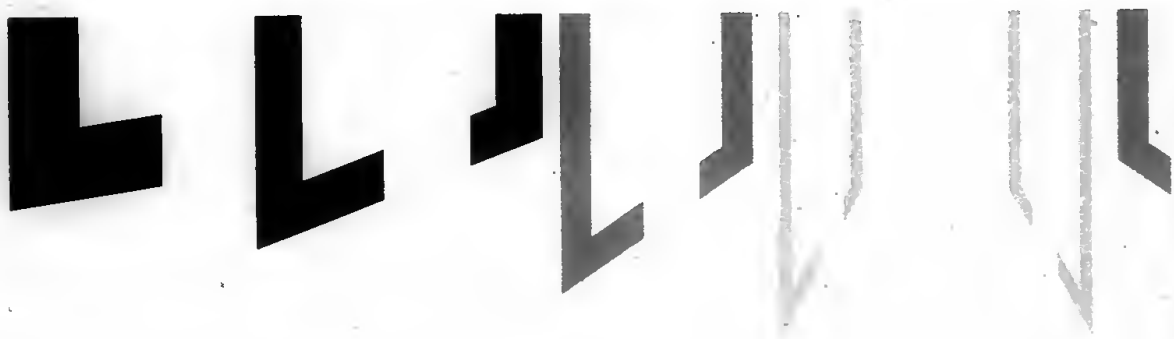

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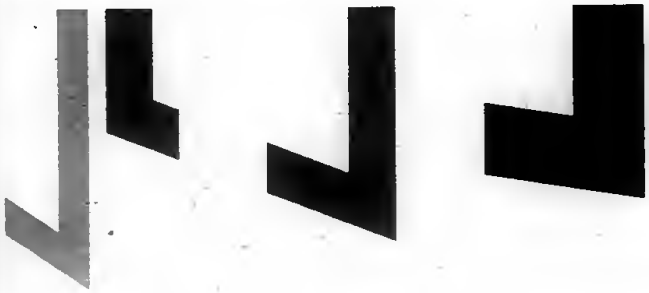

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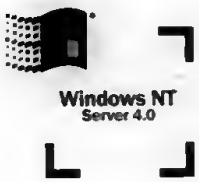
A lot has changed in two years. Including Windows NT Server 4.0.



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YEAR 2000 CHRONICLES, CHAPTER FOUR

Time to fine-tune 2000 work

▸ *Early planning pays off at six companies*

Editor's note: This is the fourth in an occasional series following the progress of six companies as they work on their year 2000 problems. Thomas Hoffman, Julia King, Gary H. Anthes and Maryfran Johnson wrote this article.

OCTOBER 1998 may be 450 days away from January 2000, but from a budgeting standpoint, it's the last shot that most organizations will have at attacking the millennium bug.

For companies that got an early start — as most of those that follow did — the final push to the 2000 date change is more about fine-tuning previous plans than frantic flailing for fresh funds.

CONECTIV

Between now and 2000, Conectiv will spend more than three times the $3.25 million it has spent, until now to ready its computer systems for the year 2000.

"I guess all that drum beating has paid off," said Chris Arena, year 2000 project manager at the $2 billion Pleasanton, N.J., utility. With a recently approved and publicized year 2000 budget of between $10 million and $15 million, "Conectiv has now committed the money and resources it takes," Arena said.

Conectiv will begin 1999 with a year 2000 project team comprised of more than 50 business and information technology representatives, up from a total of seven computer programmers in January.

Topping the list of late 1998 and 1999 priorities are testing and contingency planning. Conectiv has dedicated at least one full-time person in each department to detail potential system failures and recommend short-term contingency plans. Those might include compiling reports manually.

The utility also has hired an expert business process and data modeler to help contingency planners identify how data flows through all of Conectiv's business processes and systems. The company's original year 2000 project covered only systems that were developed by the in-house IT group, such as billing.

"[The modeler] can . . . talk about how, if certain parts of the computer weren't there tomorrow, how to do business," Arena said.

MERRILL LYNCH

If it weren't for recent acquisitions and start-up operations in Japan, Merrill Lynch & Co.'s total year 2000 budget probably wouldn't have changed much from its 1996 estimate of $275 million.

Its expansion into oew markets, however, prompted the $31.7 billion New York brokerage to up its year 2000 ante by $100 million in August to $375 million.

That month, Merrill Lynch acquired Midland Walwyn, a Toronto-based investment company. The added costs of making Midland Walwyn year 2000-compliant, along with the costs of making Merrill Lynch's Japanese start-up millennium-ready, accounted for most of the company's year 2000 funding increase, said Robert G. Dieckmann, director of Merrill Lynch's year 2000 program.

On a smaller scale, the company's certification testing "has become a little bit more expensive than estimated," Dieckmann said.

Setting up a future date environment for certification testing turned out to be "a little more complicated than we thought," Dieckmann said. In July, Merrill Lynch determined that the combination of certification and production testing would take 50% of the total project time, up from the original 45% estimate.

Dieckmann declined to break down spending on testing, though he said it would comprise 25% to 33% of the total project budget, or $93.75 million to $123.75 million.

CIBC

The original budget for Canadian Imperial Bank of Commerce's year 2000 work in fiscal 1999 was $50 million "and that hasn't changed," said John Burns, vice president of projects at the $192.7 billion bank.

But what may change are some of the unknowns — such as the oumber of business partners that will want to test with the bank — which may drive those costs north or south.

If a higher-than-expected number of banks and business partners decide to test their interfaces with CIBC, the Toronto-based bank may have to increase its systems capacity, thus driving up costs.

Otherwise, the bank's costs are fairly static. CIBC has already purchased "time machines" to simulate the date change from Dec. 31, 1999, to Jan. 1, 2000, including IBM MVS-based mainframes and RS/6000 servers and Tandem Computer Corp. machines.

The bank's structured planning approach has left little room for error. And despite the earnings pressure of ao Asian recession, CIBC's year 2000 budget is "sacrosanct," Burns said. "When you look at places where you can cut [costs], year 2000 is not one of them."

UNION PACIFIC RAILROAD

With most of its year 2000 remediation and testing work completed, $9 billion Union Pacific Railroad plans to spend only about $6 million on millennium work in 1999. That's about half of what it will spend this year and one-eighth of the project's total $46 million price tag.

Next year, the Omaha-based railroad plans to pick up on IT projects it had postponed due to its year 2000 focus. Half of the 100 programmers on the railroad's core year 2000 team will be redeployed to work on enhancements to other business applications. A freeze was put on such enhancements this year, said Tim Brechbill, year 2000 project manager.

One indirect year 2000 cost, however, is the $6 millioo the railroad will spend on new PCs and migrating some 6,000 Windows 3.1 desktops to Windows NT. The migration had been planned for this year, but budget cuts unrelated to year 2000 work put it on hold. Subsequently, IT used year 2000 as a driver to push for the change.

"We convinced upper management that [migrating to NT] was a requirement, not an option," Brechbill said.

For example, with Windows 3.1, "We didn't have a way to distribute software upgrades

Managers confident data systems will be ready

▸ *72% say Y2K bug won't hurt economy*

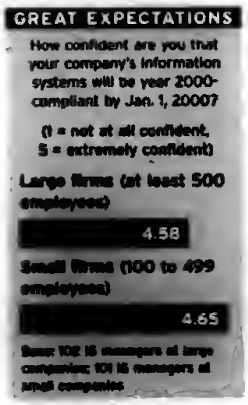
By Rick Saia

AN OVERWHELMING majority of information systems managers surveyed last month by *Computerworld* are highly confident their systems will be compliant by Jan. 1, 2000. And more than 72% of the 203 IS managers surveyed believe that the year 2000 problem won't impact the U.S. economy significantly (see chart, next page).

Asked to rate their confidence in their companies' year 2000 compliance on a scale of 1 ("not at all confident") to 5 ("extremely confident"), all but 10 of 203 IS managers responded with a 4 or 5 (see chart at left).

Two-thirds of respondents said they expect full systems compliance at their companies. Another 26% said they expect compliance between 90% and 99%, and 4% said they expect between 80% and 89% will be year 2000 compliant.

The U.S. is "going to have a few isolated problems," said Jack Rose, computer operations manager at Minnesota Wire & Cable Co., a maker of cable products in St. Paul, Minn. But



without physically visiting each desktop" in dozens of locations, Brechbill said. He noted, however, that the migration cost isn't part of the railroad's official year 2000 budget.

NABISCO

Nabisco, Inc.'s year 2000 project is halfway done, and its budget has crept up just 4.5% — from $22 million to $23 million — since it was developed 12 months ago.

Unlike companies that do top-down budgeting for year 2000, $8.7 billion Nabisco developed its spending estimates from the ground up. "Our estimates were based on experts who owned the systems," said John Halper, Nabisco's year 2000 program manager. The $1 million increase is for repairing systems the company at first thought needed no work for year 2000 compliance.

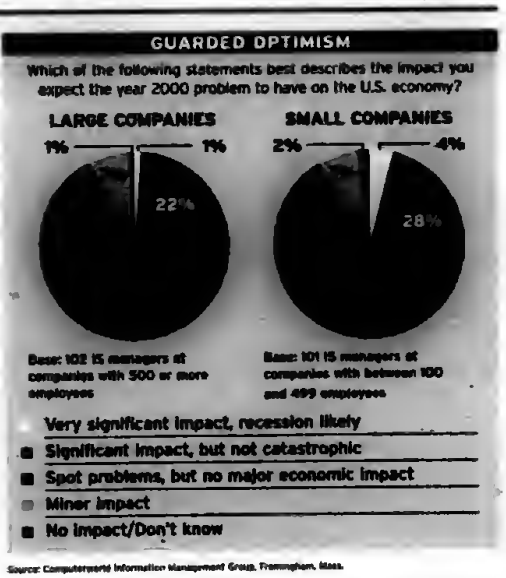
The $23 million doesn't include the $7 million to $8 million Nabisco recently estimated would be needed for microprocessors in its manufacturing equipment. Repair work there is minimal — because there are few date dependencies — but much effort will go into finding and testing those embedded systems, Halper said.

The largest portion, 63%, of the spending on year 2000 is in Nabisco's manufacturing and distribution division, where the budget has risen slightly. "As we got more and more rigorous in the testing process, we have added to the budget," said Tony Del Duca, senior director of manufacturing systems (see story at right).

CR BARD

Medical devices manufacturer CR Bard, Inc. set its year 2000 budget at the start of last year, said Vince Gurnari, vice president of IT at the $1.3 billion company.

"We did a good job early on in determining what the overall scope and costs were going to be," Gurnari said, adding that the Murry Hill, N.J.-based company's $10.9 million project will finally wind down in 2001. "We hope to have all of the [remediated] software up and running by mid-1999, but after that there are some other things to address," such as PC compliance and network testing. □



Rose added that he believes the year 2000 problem will generally "be a fairly good experience" that could help IS departments keep their houses in order for the long term.

Some experts, such as Lou Marcoccio, a Gartner Group, Inc. analyst in Westboro, Mass., said they thought the results were rosy. Marcoccio told a Senate committee last week that 15% of U.S. companies and state government agencies expect a year 2000-related mission-critical systems failure. □

Nabisco payoff goes past 2000

▸ *Quality lessons come with fixes and tests*

By Gary H. Anthes
EAST HANOVER, N.J.

LIKE MOST large companies, Nabisco, Inc. is spending millions of dollars just to ensure its systems go on ticking after Dec. 31, 1999. But the snack food giant has found ways to profit from that investment long after year 2000 repairs are done.

A combination of extraordinary risks, an immutable deadline, a huge and highly diversified software inventory and the steadfast scrutiny of auditors has made preparing for the date change a unique project at Nabisco. As a result, the company's manufacturing and distribution division — where most of the year 2000 work lies — is managing the project with unprecedented rigor.

The division established a centralized group to coordinate and set standards for seven semi-autonomous development groups, set up an intranet devoted to the project, rolled out comprehensive and disciplined procedures for project management and testing and built a test laboratory. All of those will remain after completion of the year 2000 project.

RESIDUAL VALUE

Barbara Calhoun, year 2000 project manager for manufacturing systems, acknowledged that improving Nabisco's software development capabilities wasn't the only motivation for those innovations.

The company wants to ensure that its efforts satisfy the requirements of "due diligence" as defined by company auditors fearful of lawsuits over year 2000 snafus.

Use of a "structured methodology" will do that, Calhoun said. "You have to prove you did what you said and said what you did."

Managers of the seven development groups in manufacturing information systems once had their own methodologies, Calhoun said. But now, all are singing from the same sheet of music, which lays out policies, procedures, testing methods, reporting and documentation standards and the like.

Tim Bilali and Barbara Calhoun say Nabisco will profit from its year 2000 investment well into the new millennium

"I'll be honest," said Robert Monaghan, lead technology adviser in one of the groups, "if I hadn't had those things, this project would never have gotten finished."

Last year, when Monaghan thought he was done with his part of the project, Calhoun challenged him to prove it via more thorough testing. "We absolutely discovered we weren't done," Monaghan said.

Bringing a standard project framework to the decentralized organization demanded a balance between strict requirements and suggested guidelines, Calhoun said. For example, her methodology describes six year 2000 test scenarios but requires just three. "The methodology is flexible enough that people actually use it, but rigorous enough to show due diligence," she said.

The testing will consume 65% of Nabisco's $10 million year 2000 effort in manufacturing and distribution, Calhoun said (see story, previous page).

"We've introduced a lot more testing tools than existed here before, and those things will carry on after year 2000," said John Halper, the company's overall year 2000 program manager. "Manufacturing took the lead in the development of test methodologies, so a lot of other groups have been able to get a jump-start."

Manufacturing's year 2000 web site is one of 50 intranet sites at Nabisco and one of the most used, Calhoun said. It offers information on topics ranging from "audit guidelines" to "Y2K tools," collects and consolidates project status and schedules, gives access to databases such as the software inventory and provides downloadable test templates.

Calhoun said the intranet introduced to some people — including programmers aspiring to management — project management techniques they hadn't seen before. "A couple of people have come up to me and said they now want to do all their projects this way," she said.

Tim Bilali, senior manager of information services, said it took some doing to convince people that the heavy investments in testing and documentation were worth the effort.

"Some people thought they could do their testing in a day," Bilali said. "Now, we feel good to hear people all talking the same language. That was not the case six months ago." □

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Biometrics

DEFINITION: Biometrics literally means "life measurement." In the realm of security, it refers to automated methods for identifying people based on their unique physical characteristics or behavioral traits. Types of biometric methods include fingerprint scanning, iris scanning, retina scanning, handwriting analysis, handprint recognition and voice recognition.

- Biometric authentication is a two-phase process. First, users "enroll" by having their fingerprints, irises, faces, signatures or voice prints scanned.
- Key features are extracted and converted to unique templates, which are stored as encrypted numerical data.
- In the second phase, corresponding features presented by a would-be user are compared to the templates in the database.
- Matches will rarely be perfect, and the owners of the system can vary a sensitivity threshhold so as to minimize either the rate of false rejections, which annoy users, or false acceptances, which jeopardize security. This offers far more flexibility than the binary "Yes" or "No" answers given by password technologies.

Promising technology has yet to gain wide acceptance

By Gary H. Anthes

USER AUTHENTICATION is the cornerstone of information security. If you can't identify the people trying to access your facilities or systems, nothing else in security matters.

Traditionally, people gain access to secure places using something they know, such as passwords, or something they possess, such as security cards or bank automated teller machine (ATM) cards.

AT ISSUE

Cost, accuracy, user resistance

A third and increasingly common method, called biometrics, is based on who people are and what they do. Biometrics works because people have unique and somewhat stable body features — such as fingerprints, eyes and faces — and ways of doing things — such as speaking and writing signatures.

The "something you know" and "something you have" approaches are proved, widely accepted and relatively inexpensive. But passwords, cards and keys can be forgotten, stolen, forged, lost or given away. Things such as fingerprints can be converted into unique human "bar codes" that don't have those drawbacks.

Nevertheless, biometric systems aren't widely used. Obstacles include immature and expensive technology and user resistance. People who think nothing of entering passwords balk at the idea of having their eyeballs scanned. And some see biometrics as an invasion of privacy.

"Unfortunately, user acceptance cannot be built in to a device," says Phillip Green, a senior technologist at American Management Systems, Inc. in Fairfax, Va. He says administrators need to know how often a system falsely rejects or falsely accepts.

Indeed, biometric techniques involve tradeoffs among factors such as accuracy, ease of use, cost and user acceptance (see chart below). The right choice depends on the level of security required. For example, a device guarding a nuclear weapons plant should have extremely high accuracy — at virtually any cost — and users of the system should be willing to tolerate some inconvenience. But a system protecting an ATM requires a high level of user acceptance, and administrators might be willing to trade some security for lower cost.

Mentis Corp., a market research firm in Durham, N.C., says the biometric market will total $100 million this year, a tiny fraction of the $100 billion spent on private security in the U.S. Yet Mentis predicts the market will grow at a brisk 27% to 35% through 2000 as pattern-recognition software improves, computers become better able to handle the power-hungry biometric applications and prices fall.

Kimberly Harris, a research analyst at Mentis, urges users to be wary of test results that show biometrics as highly effective. "[When] you get out in the real world, it's not the same," she says. "You have extraneous factors, background interference and users who are not trained." □

Common biometric techniques and how they rate

	USER CRITERIA		SYSTEM CRITERIA	
	INTRUSIVENESS	EFFORT	ACCURACY	COST
Dynamic signature verification	Excellent	Fair	Fair	Excellent
Face geometry	Good	Good	Fair	Good
Finger scan	Fair	Good	Good	Good
Hand geometry	Fair	Good	Fair	Fair
Passive iris scan	Poor	Excellent	Excellent	Poor
Retina scan	Poor	Poor	Very good	Fair
Voice print	Very good	Poor	Fair	Very good

Source: Zephyr Analysis and International Biometric Group, New York

Biometric information sources

Biometric Consortium *(www.biometrics.org)* – U.S. government's biometrics site. Contains publications, research, databases, events and government activities.

Association for Biometrics *(www.afb.org.uk)* – A listing of terms, reports, advice and events.

International Biometric Group *(www.biometricgroup.com)* – Information is free or by subscription. Contains biometric news and consulting.

International Computer Security Association *(www.ncsa.com/icsa)* – Contains information on biometric programs and activities.

■ *Are there technologies or issues you would like to learn about in QuickStudy? Send your ideas to QuickStudy editor Stefanie McCann at* **stefanie_mccann@cw.com**

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OPINION

Dummy coverage

Our story last week about a new twist on technology from the insurance industry ["Network security under attack? Buy insurance," CW, Oct. 5] fairly leapt off the page at me. How ironic. How appalling. Are we really contemplating security screwup insurance now?

Sure looks that way. Leading technology companies, such as IBM and Cisco Systems, are teaming up with insurers to sell policies that will compensate companies for network security breaches or hacker-induced electronic-commerce debacles. For tens of thousands of dollars in annual premiums, businesses that pass certain security audits will have the privilege of paying for something they shouldn't need in the first place. It's like hiking up your collision coverage and then driving drunk on purpose.

Why? Because network security insurance is the wrong answer to the right question.

Every time a high-profile Web site is hacked and humiliated, the sheepish victims say there were security measures they should have taken — but didn't.

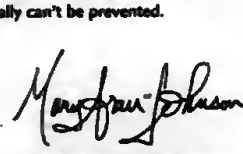
Info-security surveys routinely find that businesses neglect or mishandle the most no-brainer security procedures. I recently heard of one company that set up an elaborate, leading-edge security system and then E-mailed all the critical passwords to the managers. E-mail! Insecure, hackable, vulnerable E-mail.

An Ernst & Young/*Computerworld* survey of 4,255 IT managers and security professionals ["Lotsa talk, little walk," CW, Sept. 21] found that 41% of them had no formal security policies whatsoever. Yet 84% agreed info-security was oh-so important to them.

Network security should be a drop-dead No. 1 priority for any company connected to the outside world.

Consider also what kind of business message you're sending to customers if you fail to adequately protect their electronic lifeline or their online information. It will be scant comfort indeed, in the aftermath of a damaging hack, to assure everyone that your "business losses" are insured.

Far better to put those would-be premiums toward beefing up network security with better products, people or procedures. Save your insurance dollars for disasters that really can't be prevented.



Maryfran Johnson, *executive editor*
Internet: *maryfran_johnson@cw.com*

LETTERS

Buffing up IS's image

MICHAEL COHN is right ["IS Makeover," CW, Aug. 3]. It could only help IT's image if Bill Gates looked like Tom Cruise, or at least someone approachable. The same goes for Larry Ellison.

Here we have the two technology giants and neither one is the sort of person you'd want to invite over for dinner.

Not only that, their personal greed is a big turnoff for those of us already in the industry. Imagine the impression they give to folks who are just now peering in.

Violet O'Brien
Vice president
Novistar
Houston
obrienv@novistar.com

ALTHOUGH COLUMNIST Michael Cohn's idea [CW, Aug. 3] is a cute one, a makeover of IS will not have any impact on the image. What is needed to change the perception is a crisis that will have the ability to draw businesses to a halt and highlight the importance of IS to the organization.

Although the year 2000 problem is increasing the exposure of IS, it's not severe enough to cause a change.

A large part of our problem is that IS staffers will continue working until a fire is put out to keep the systems available to do business.

We'd rather know we did a good job than let something slide, so that IS would come to the attention of others.

Greg Gottsacker
Chief information officer
Edco Products, Inc.
Minneapolis
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Microsoft through rose-colored glasses

IN HIS COLUMN ["A tale of two titans," CW, Aug. 3], columnist David Moschella writes: "Both Standard Oil and Microsoft could honestly say they served their customers well. . . . Serious customer complaints were and are relatively rare."

In what universe does Mr. Moschella live? Microsoft is the epitome of callous and unresponsive customer service. Customers have to accept an amazing level of instability to use their products.

Undoubtedly, there are people out there who love Microsoft and its products, but to overlook the consistent grumbling in the user community is poor journalism.

Dick Heyman
Network engineer
City of Fort Collins, Colo.

Quoting Shakespeare

REGARDING David Moschella's column applying Shakespearean quotes to Microsoft ["Microsoft according to Shakespeare," CW, Sept. 21], a better choice would be: "Never shame to hear what you have nobly done."

Coriolanus, Act ii, Sc.2

Ted Williamson
Microsoft Consulting Services
Southfield, Mich.

Question on mainframes: Obsolete or hardly beat?

IN RESPONSE TO Geoff Wascher's letter of Sept. 7, "Mainframe skills *are* still in demand — and compensated," I would like to ask him two questions, the answers to which should underscore my earlier statement that " . . . apart from year 2000 work, there is relatively little demand for mainframe skills" [CW, July 6].

How many *new* projects has he heard of that have chosen to go the mainframe way?

How many *new* projects go the mainframe way these days? And how many jobs call for mainframe skills?

And on general IT-related job sites on the World Wide Web, in comparison to jobs offered in other skills and areas (Unix, PC, AS/400 and so on), how many jobs has he seen offered for mainframe skills?

Jayant Chaudhary
Lawrenceville, Ga.

Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

Everybody's an expert all of a sudden

William Ulrich

I am amazed at the number of year 2000 experts who have recently crawled out of the woodwork. So-called experts are talking to the media, selling videos, publishing manifestos and launching Web sites at a frenetic pace.

I've been working in the year 2000 field for almost six years. For the bulk of that time, only major corporations cared about the problem — and that concern was confined to a small area within IT. I knew most of the strategists, bell-ringers and service providers by name. That's all changed.

Tough new standards could send year 2000 profiteers and charlatans packing.

Today, there are thousands of Web sites, scores of books and countless magazine articles offering advice on year 2000. Where did all these experts come from, and why should we care?

Make no mistake: The world needs year 2000 expertise. IT managers need help evaluating corporate readiness. Business executives require help assessing supplier compliance. Government officials need insights into how well various industries are progressing. And community task forces, the media and ordinary citizens are demanding answers to complex year 2000 questions. In the end, lawyers and insurance companies will engage experts to help with litigation and claims processing.

As 1999 counts down to '00, experts will be called on to assure the rest of the world that things are going to be OK — or not. Supply and demand has ensured that the number of year 2000 "experts" will continue to grow. Schemers and con artists are making their mark. There's no shortage of people selling pamphlets, compliant land plots, dried food supplies and shares of communal living space. Many of these people are well-meaning, though not fully informed. But other endeavors are fronted by profiteering "instant experts."

So what constitutes an expert? Truly authoritative sources are scarce, and no single individual has access to the total knowledge base of what can go wrong — or how it will be fixed. There are embedded-systems experts, date experts, testing experts, PC experts and a handful of generalists. Technological complexity and diversity has limited who can truly be called an expert. According to *Business Insurance* magazine, the insurance industry may soon force a tighter definition to be applied to the term "year 2000 expert."

In July, the American Insurance Association and National Association of Independent Insurers filed a brief urging the U.S. Supreme Court to apply the same standards for admissibility principles on technical issues that the court set forth regarding scientific testimony. Insurers contend that this would set the stage for how testimony related to the millennium bug would be handled. The Washington Legal Foundation filed a similar brief stating that "an unchecked expert can be a dangerous roadblock to the search for the truth."

A 1993 Supreme Court ruling (*Daubert vs. Merrell Dow Pharmaceuticals*) set the tough standards that insurers hope to emulate. The court said scientific testimony should be used only if the theory or technique has been tested, has undergone peer review and publication, has a known or potential error rate and is generally accepted by the relevant scientific community.

If that standard is applied to technical issues, it will certainly limit the available list of year 2000 experts. It might prod government officials, community groups and everyday citizens to tighten up their standards as well. Hopefully, it will send some millennium charlatans scurrying back to the woodwork. □

Ulrich is president of Tactical Strategy Group, Inc. and executive vice president of Triaxsys Research LLP. He is co-author of The Year 2000 Software Crisis: Challenge of the Century *and* The Year 2000 Software Crisis: The Continuing Challenge. *His Internet address is tsginc@cruzio.com.*

Knowledge management: Some 'there' there

John Gantz

Perhaps the biggest investment any company makes is in its intellectual capital — the patterns stored in terabytes of transaction records, the characters hidden in file cabinets and on disk drives, the knowledge in the heads of its employees.

And now we have access to even more intellectual capital — through the Web, through intranets and extranets and by agreement with supply-chain partners.

We are awash in data. If we're lucky and can imbue it with some relevance, that data becomes information. And there's *still* too much of it. Not until we can imbue information with context can we turn it into knowledge.

That's the realm of knowledge management. One of the hottest buzz phrases in IT right now, the term is used by hundreds of E-mail vendors, database and data warehouse software vendors, groupware vendors, document management and workflow vendors, search engine and "push" vendors, service and consulting firms and even artificial intelligence vendors to describe the next frontier for their products.

You could be excused for saying "knowledge management" is an oxymoron. But, in reviewing the literature and my company's research, I've learned two points:

- Implementing knowledge management systems requires advancement on three fronts: people (culture), organization (discipline) and technology (tools).
- Putting knowledge management to work will make implementing Lotus Notes or migrating from DOS to Windows across an enterprise look easy. The shape and nature of the knowledge management systems you can use will depend more on environment, infrastructure, business model and corporate culture than technology.
- What separates knowledge management from the technologies we use today to store and manipulate information is the idea of context. Today's technologies — data warehousing, search and retrieval, document management and so on — are all about making us smarter about our information. Meta data. But knowledge management means making our information smarter about *us*. It means filtering information based on user and transaction profiles. Dynamically noticing patterns in information requests. Customizing views of information based on business rules.

Put those concepts together and you see it will be a long time before knowledge management is anything but a buzz phrase.

Take it seriously, but remember: It's more than just an IT strategy.

IT consulting and service companies seem to be making the most progress. If those knowledge-intensive firms can implement knowledge management, they can gain competitive advantage.

They also can sell their expertise. According to International Data Corp., a sister company to *Computerworld*, IT consulting and service firms this year will earn more than $1 billion in the U.S. in knowledge management work. They will also invest about 10 times that in knowledge management for their own use.

And here's why you can't lump knowledge management in with repository management, upper CASE, unified network management, the universal controller and all the other ideas that were too hard to put into practice: If the consulting and service companies selling knowledge management services use it, chances are that the average company can as well.

My advice? Take the concept seriously and get up to speed. But don't forget that knowledge management is less an IT solution than a business activity. It requires advocates from all over the company. Start rounding them up. □

Gantz is a senior vice president at IDC in Framingham, Mass. His Internet address is jgantz@idcresearch.com.

Antitrust case will finally answer some questions

Dan Gillmor

If there are no more delays, Microsoft will face a federal court Thursday in the most important antitrust trial in recent years. And by the time the case wends its way through the Supreme Court, as it will, we'll know the answers to two essential questions.

First, we'll learn whether software is subject to antitrust laws.

That may sound absurd, but a bizarre ruling by a federal appeals panel last spring makes the question a nail-biter. The three-judge panel went out of its way to endorse Microsoft's right to engineer software as it chooses.

The only people who deny the Microsoft monopoly are company executives, lawyers and acolytes.

What's the problem? If Microsoft can put anything in the Windows operating system — up to and including a ham sandwich, as one of its executives memorably proclaimed at one point — then antitrust laws are moot when it comes to software.

Microsoft could put any competitor out of business simply by incorporating the features of the competitor's product into Windows.

It's hard to believe the Supreme Court would agree to that standard. If it does, look for Congress to revise the antitrust laws. Our more alert lawmakers are beginning to realize that if a single company gains absolute control over the data dial tone through which we get our information and conduct most of our business, that company's power could one day rival the government's.

Assuming the antitrust laws do apply, a second principle will also be settled: whether Microsoft has, in Windows, a monopoly on the desktop computer. I'm not talking about a literal 100% market share but rather a monopoly for antitrust purposes: an overwhelming dominance in which competition is stifled.

About the only people who deny the Microsoft monopoly are the company's executives, lawyers and most ardent acolytes. They claim that technology moves too quickly for anyone to have monopoly power. Tell that to anyone trying to buy a PC these days; just try to get an operating system other than Windows preloaded.

One of the most useful outcomes of this trial and the appeals will be a legal determination that Microsoft does indeed have a monopoly. That could lead to some useful behavior modification on Microsoft's part because adjudicated monopolists have to be much more wary about crossing anticompetitive lines. Microsoft has rarely seen a line it wouldn't cross.

A third question is considerably more speculative, and we probably won't know the answer before the Supreme Court rules on the current case: whether Microsoft will decide to break itself up before someone else does.

The obvious method — and the conventional wisdom on the matter — would be to break the company into three parts: operating systems, applications and media. That would likely be Microsoft's approach, because it would turn out to be a sham. Assuming the new companies didn't collude, the operating systems unit would eventually subsume the others, given Microsoft's self-proclaimed ability to bundle anything it chooses into that operating system.

A better approach hearkens back to another monopoly: Standard Oil. Suppose Microsoft were broken up into a bunch of companies — three or four would suffice in Microsoft's case — and each had rights to all the intellectual property. Today's Windows would be the baseline, and the companies would compete to improve it. Consumers and IT alike would reap the benefits, and if Standard Oil is any precedent, Bill Gates would get even wealthier. □

Gillmor is technology columnist at the San Jose Mercury News. *His Internet address is dgillmor@sjmercury.com.*

Coming soon: *www.scalper.com*

David Moschella

The historic feats of Mark McGwire, Sammy Sosa, David Wells, Cal Ripken and the New York Yankees have made this one of baseball's most magical seasons, perhaps the last great one of baseball's pre-Internet era.

Yes, even the act of going to a ball game will be transformed by the Web. As I look into my crystal ball, here's what I see.

Right now, somewhere out there in cyberspace, eager entrepreneurs are already plotting to re-engineer fandom as we know it. They are thinking about tickets. They take it as a given that today's paper-based permits will eventually prove to be hopelessly obsolete. Their only real question is how to best use the Internet to transform the ticket-buying process into a *friction-free electronic-commerce experience*, as these revolutionaries would no doubt dub it.

The possibilities will excite the venture capital community, which will rediscover what fans already know: It's often impossible to predict which games people will most want to see. Unlike airline, theater and most other tickets, during certain high-interest periods (called pennant races), demand can suddenly and greatly exceed supply — or nearly vanish. Thus, *the essence of the Internet baseball ticket value proposition will stem from the fixed supply but highly unpredictable demand for sports tickets.*

Once this vision is sufficiently funded, it becomes only a matter of time before an open, Web-based ticket-trading system emerges. After some messy experimentation, the electronic-ticket marketplaces of the 21st century will turn into a cross between initial public offerings (IPO), commodity futures and a 24-hour-per-day auction. No longer just passive buyers, we will all be empowered to *optimize our seat license investments.*

For example, depending on how well a particular team is doing, its ticket prices will rise or fall during the season. In contrast, fair-weather fans will buy options that will grant them the right to go to certain key games at a certain fixed price.

For teams lucky enough to make the playoffs, postseason tickets will be like IPOs. An initial price will be set, which will then rise or fall based on actual demand. Finally, any unsold tickets will be auctioned off at whatever price is needed to fill the ballpark — a boon for those teams whose seasons are effectively over by the end of July.

Today, none of this can happen because the transaction costs are prohibitive, and most states have weird laws that prevent consumers from reselling their tickets.

Yes, the Web will change even the way you go out to the old ball game.

preferring to brand us all with that hideous word *scalper*. But those barriers will inevitably give way to our self-proclaimed right to pursue unfettered global electronic commerce. Moreover, many fans will find the temptation to trade in tickets irresistible. Like the NFL point spread, called the "line," ticket spot prices will become a casual integral part of daily conversation.

In the end, technology will make optimizers (and scalpers?) of us all. Players already test the market for whatever they can get; someday, owners will be able to maximize their ticket revenue, while fans will try to calculate their optimal game-consumption patterns. It may not be progress, but it's pretty much a whole new ball game, and a metaphor in no way limited to sports.

Perhaps it's true that the Web will indeed change everything, even baseball. But if you ask me, sometimes a little capitalist friction isn't such a bad idea. □

Moschella is an author, independent consultant and weekly columnist for Computerworld. *His Internet address is dmoschella@earthlink.net.*

"How did we put Spain's Railroad on the Information Super Highway?

We used WebFOCUS."

"We use WebFOCUS and EDA [illegible] to publish up-to-the-minute schedules from multiple dynamic databases."

Eduardo Fernandez,
Managing Director of
Information Services, RENFE

[illegible] Running to [illegible]

[illegible] State-owned railway system, [illegible] always been known for outstanding rail service. And now, thanks to the latest Web technology from Information Builders, they're known for outstanding customer service, as well.

Integrating Web Applications with Live Data

[illegible] Information Builders' WebFOCUS [illegible] and EDA middleware, [illegible] up to the minute train [illegible] on live, dynamic data from [illegible]. Anyone with a standard [illegible] determine exactly when any [illegible] system will arrive at or depart from any destination... even if the train encounters unexpected delays. All it takes are a few simple menu picks to launch a query. The new system has virtually eliminated the expense of creating and maintaining over 6,000 pages of static train timetables. And the thousands of hits on their Web site has produced valuable marketing demographics as an added bonus.

RENFE is also developing Web transaction applications with Information Builders' Cactus application development environment. The new applications will allow customers to fill out forms on RENFE's Web site to plan trips, make reservations and purchase tickets.

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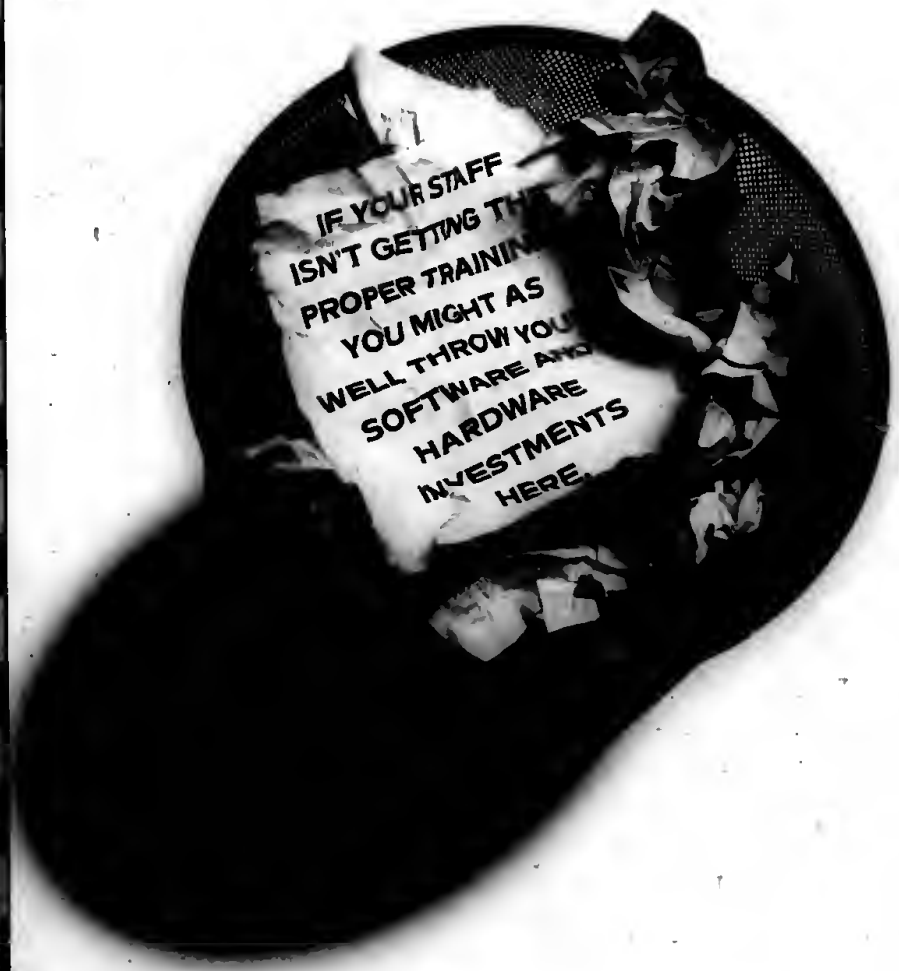

According to a Gartner Group study, employees without formal training use less than 25% of their applications. On the other hand, trained users can increase productivity more than 165%. And those numbers can make a big difference next time you need to get a budget approved.

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Briefs

More money machines

Bank-operated automated teller machines	
February 1998	132,000
February 1997	117,000
Median number of ATMs operated by large banks	
February 1998	440
February 1997	345

Base: Survey of 500 banks; margin of error +/- 12%

Source: U.S. General Accounting Office, Washington

Managing upgrades

Alternative Resources Corp. in Lincolnshire, Ill., last week rolled out a series of technology deployment services aimed at users in need of short-term year 2000 help and other big, periodic information technology rollouts.

The services include everything from project planning to post-installation training for end users whose operating system and business applications may have just been upgraded. Per-user pricing ranges from $90 for installing a PC and discarding its carton to $900 for the entire suite of services.

Power YOU testing

Washington Water Power (soon to be renamed Avista Corp.) in Spokane, Wash., claims to have successfully completed year 2000 testing on nine of its 10 company-owned electric-generation facilities.

The combined output from those hydroelectric and wood waste-to-electricity plants represents 75% of the company's overall generation capacity. Testing of the three remaining company-owned plants is expected to be completed by year's end.

Boom times for temps

Total paid by clients to staffing agencies

1997	$50.3B
1996	$43.8B

Source: National Association of Temporary and Staffing Services, Alexandria, Va.

Retailers seek IT bargains

▸ *And invest more when bottom line benefits*

By David Orenstein

WHEN RETAILERS go shopping for information systems, they are notoriously smart and frugal. Increasingly, that means they are finding bargains in the form of packaged software and outside services.

PACKAGED SOFTWARE

With after-tax profit margins of about 2% on average, retailers have to be thrifty. Only 0.7% of retailer revenue is spent on IS, according to a recent industry report by Aberdeen Group, Inc. in Boston. Manufacturers, by comparison, average a profit of 6% and an IS spending level of 2.4%.

The financial pressure on retail IS departments has often meant that their systems were three to four years older than those in other industries, the Aberdeen report said.

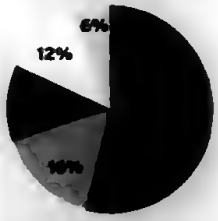
But as technology has become powerful enough to produce major savings or lure more customers, retailers' interest in new IS projects has been piqued anew. Buying new systems will result in more spending, but it spreads time and dollars further than building the systems does, said Aberdeen analyst Donald C. Bellomy.

Filene's Basement, Inc., a Boston-based fashion discounter, is spending more money on IS these days in the name of greater efficiency (as well as to fix its year 2000 problem), said Chief Information Officer John W. King. The company recently purchased several new back-office and in-store applications from JDA Software Group, Inc. in Phoenix.

Filene's Basement already uses JDA's Merchandise Man-

Retailers, page 38

Retailers' 1997 IT spending, by purchase type



Total spending: $11.1B

Source: Aberdeen Group, Inc., Boston

Ryder had to teach Perot the truck business

▸ *Outsourcers' technology acumen wasn't worth a darn without it*

By Julia King

At first, the new IT staff didn't appreciate the need to closely track trucks

IN A FEW WEEKS, Ryder TRS, Inc. will pull the plug on its aging mainframe-based systems and go live with an entirely new portfolio of software applications. Built at a cost of about $40 million, the new applications will track the Denver-based truck rental company's 35,000 vehicles and handle about 2 million rentals annually.

All of the new systems were developed and delivered on time and on budget over the past eight months by Cambridge Technology Partners, Inc., one of Ryder's two primary outsourcers.

But that's been the easy part. The far greater challenge at Ryder has been molding an effective information technology team from a group of outside technical experts with no previous knowledge of the truck rental business.

"Typically, when companies outsource, the outsourcer goes in and hires a whole IT organization, so there's a knowledge base they inherit," said Ryder Chief Information Officer Puneet Bhasin.

But when commercial rental company Ryder System, Inc. sold off its consumer truck

Ryder, page 38

Hacks gain in malice, frequency

By Sharon Gaudin

THE U.S. government's best anti-hacker teams are studying the latest intrusion trends in hits against government sites, and they say the corporate arena is being hit with the same attacks.

The Naval Surface Warfare Center and the Army Research Laboratory, which track, analyze and build defenses against intrusion attacks on military sites, have teams of engineers tracking the attacks that hit their World Wide Web sites and systems hundreds of times per day.

Hacks, page 38

Exchange to outsource SEC project

By Thomas Hoffman

TO FREE ITS development staff to work on more interesting projects, the Pacific Exchange, Inc. has decided to outsource the conversion of its trading systems to meet an upcoming deadline for pricing stocks and options in decimals, instead of fractions.

Under Securities and Exchange Commission requirements, the securities industry must price stocks and options in decimals by late 2000. Advocates of decimalization, as it is called, contend that it will narrow the spreads, or differences between Buy and Sell stock prices, which should help investors.

Exchange, page 38

Pacific Exchange will have outsiders do decimal conversion

Corporate Strategies

Case Studies • Trends • Outsourcing

Briefs

More money machines

Bank-operated automated teller machines	
February 1998	132,000
February 1997	117,000
Median number of ATMs operated by large banks	
February 1998	440
February 1997	345

Base: Survey of 500 banks; margin of error +/- 12%

Source: U.S. General Accounting Office, Washington

Managing upgrades

Alternative Resources Corp. in Lincolnshire, Ill., last week rolled out a series of technology deployment services aimed at users in need of short-term year 2000 help and other big, periodic information technology rollouts.

The services include everything from project planning to post-installation training for end users whose operating system and business applications may have just been upgraded. Per-user pricing ranges from $50 for installing a PC and discarding its carton to $500 for the entire suite of services.

Power Y2K testing

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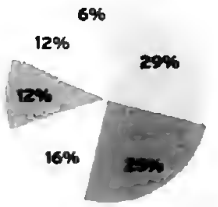

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Exchange, page 38

Pacific Exchange will have outsiders do decimal conversion

Hacks

CONTINUED FROM PAGE 37

And the attacks and the hackers themselves have changed, from benevolent and often juvenile attempts to gain bragging rights to malicious intrusions-for-hire that steal information and cripple systems.

"A year ago, almost 100% of the hackers just wanted to break in and touch a machine to say they'd been there," said Stephen Northcutt, head of Intrusion Detection at the Naval Surface Warfare Center. "Over the last six months, we've found that hackers are making money off their fun. They break in to a system, cop some information and sell it. Today, it's about organized crime and espionage."

"Whatever is happening to Naval research labs is probably happening to Citibank."
– Jim Hurley, Aberdeen Group

Hackers have dramatically more powerful and sophisticated tools today compared with even six months ago, according to Angelo Bencivenga, team chief at the Army Research Laboratory's Computer Security and Incident Response Team in Adelphi, Md.

"The tools they're using jumped dramatically in sophistication. Their techniques. Everything," he said.

Many tools, especially probe attack tools, are developed by advanced hackers, then posted on Web sites for others to use. The tools contiouously throw code strings at a system, trying to crack it. When the tool finds a vulnerability, it will automatically compromise the system.

CIVILIAN DANGER

And Jim Hurley, an analyst at Aberdeen Group, Inc. in Boston, said use of those types of tools and new hacker techniques cross the military/civilian line.

"It's happening on any large target network — government or otherwise, wouldn't matter," Hurley said. "Whatever is happening to Naval research labs is probably happening to Citibank. No one's unique."

"Hackers don't just save their best stuff for us," Bencivenga said.

New techniques include the following:

- Several hackers attacking at the same time, each one testing for vulnerabilities with just a few packets, or even one, which is harder to detect than streams of packets from one hacker. "It makes them more dangerous because they're harder to find," said Northcutt, who said his team discovered this technique last month. "Finding a single hostile packet — talk about a needle in a haystack." Northcutt said his team hasn't found a good way to battle this new attack yet.
- In TCP/IP, flags, such as "a" for start and "f" for finish, need to appear in specific places in the packet. Hackers put flags in incorrect spots and can tell by the response a system makes to the bad flags what kind of system it is. Identifying a system makes it easier to crack. Security analysts haven't found a countermeasure.
- Use of probe attack tools. Bencivenga said the tools can be blocked if they are detected. The trick, as always, lies with detection, he said.

And the new attacks are finding some success.

"We've found that people have gotten some sensitive information along the way," Northcutt said. "Of course, they get a lot of junk, too."

The U.S. Department of Defense reportedly was hit with about 250,000 attacks last year, according to the General Accounting Office.

"These attacks are often successful, and the number doubles each year as Internet use increases and hackers become more sophisticated," Northcutt said. □

Ryder

CONTINUED FROM PAGE 37

business to Questor Partners Fund in 1996, "none of the IS personnel came across," Bhasin said. The main reason, he said, is that Questor had no real intention of remaining in the truck business. "The sole purpose of Questor was to sell us at a profit or go public," Bhasin said.

In June, Questor sold Ryder TRS to Budget Group, Inc.

Rather than create a new IT group, the spun-off truck business signed a two-year deal to remain on the Miami-based parent company's computer systems. Then, in February 1998, it opted to outsource all IT applications development and support under its current five-year deal with Cambridge and Dallas-based Perot Systems Corp. [CW, Feb. 9].

To help the 140 Cambridge and Perot workers assigned to it acquire the business knowledge they lacked, Ryder dispatched them to 200 truck rental dealerships. There they could see firsthand how the truck rental business works.

Ryder also plucked 35 of its own employees from their regular operations jobs and organized them into a "systems attack team" whose purpose was to teach the outsiders the truck business and make sure the new systems met real-world business requirements.

"None of the IS personnel came across" after the Ryder sale.
– CIO Puneet Bhasin

KNOW US FIRST

"Until you understand what we do, you can't possibly build a system," said Claudia Haney, who moved from a field operations management job to join the team and has led it since May.

For example, Ryder inventory managers needed the new traffic management system to provide a summary of where trucks have been during the past few weeks. That is important in resolving dealers' customer service complaints.

"But what the IT people heard was that users needed a history of the inventory, which would have taken the system's every brain cell to determine for any point in time. So clearly, there was a very big gap," Haney said.

However, because users and IT staff work in the same Ryder building, they were able to meet face-to-face to iron out differences and get back on track with what is one of the company's most critical business applications.

"The ability to keep that business profitable is really pegged to asset management," said Bill Rennicke, a transportation industry consultant at Mercer Management Group in Lexington, Mass.

'LACKADAISICAL'

Similar business knowledge gaps existed on the applications support side. But the people from Perot were "lackadaisical," at first, Haney said.

"It took them a while to understand that it was a major concern when we couldn't run trucks because that impacted revenue," she said.

But now, Haney said, the gap has narrowed significantly. She knew that for sure, she said, just a few weeks back, as Hurricane Georges was bearing down on the Miami data center that houses the systems Ryder has been using. With such a violent storm on its way, the systems had been powered down. Ryder employees in Colorado were taking reservations by telephone, tracking down trucks manually, then calling back customers to confirm orders while others stood by in Florida, ready to restart. What's more, Haney said, Perot employees "were actually calling people back to see if they could book a truck for them." □

Exchange

CONTINUED FROM PAGE 37

Converting trading systems to work in decimals is similar to year 2000 repairs in that programmers identify software program fields where fractions are represented and change the code to recognize and accept decimals.

The decimalization conversion work "is a fairly rote process — detect it, change it," said Carolyn Botell, the exchange's vice president of San Francisco development.

Pacific Exchange's approach makes sense, analysts said, because so many information technology staffs in the securities industry are overwhelmed with year 2000 projects and day-to-day systems maintenance.

Only 30% of securities industry firms are planning to outsource their decimalization work, according to a study conducted earlier this year by The Tower Group, a Newton, Mass.-based financial services and technology consultancy.

"Most firms felt that their core processing systems are best known by their internal staffs" and that the work didn't require extensive changes, said Larry Tabb, an analyst at The Tower Group. □

Retailers

CONTINUED FROM PAGE 37

agement System and is considering adding applications for data warehousing, Windows-based point-of-sale transactions and point-of-sale data-collection.

"Our strategy is to try to use IDA's development group to do the [integration] work for us," King said.

With better-integrated systems, Filene's Basement will gain more control over its complicated frequent-markdown pricing policy. The entire chain, as well as each store manager, will have stronger electronic data interchange links to suppliers that will give them advance notice of incoming inventory.

The systems at Petsmart, Inc., a 500-store, Phoenix-based pet-supply chain, will make a huge leap when the company updates its legacy system with Retail 4.5 from Germany's SAP AG by next spring, said project leader Michael Jordan. Headquarters will receive data from stores faster and more reliably, analysts will be able to drill down into demographics and purchasing data, and banks and vendors will be tied in better.

But to accomplish the daunting integration of about 100 interfaces with SAP, Petsmart has turned to Datagate, an integration tool from Software Technologies Corp. in Monrovia, Calif. The links the software creates will replace the custom-written links the retailer used to make and maintain. Jordan said he expects the million-dollar Datagate contract to save the company 40% of its development costs and 80% of its maintenance costs.

Cost savings are also crucial at Office Depot, Inc., a Delray Beach, Fla., chain of 649 office supply stores. An imaging and workflow system implemented in the accounts payable department paid for itself in less than 18 months, said George Bryan, vice president of financial services. The system, set up by American Management Systems, Inc. in Fairfax, Va., keeps 8 million invoices within instant reach of 160 workers' desktops. The chain has grown rapidly in the past two years, yet its accounts payable department has been able to work faster with 20 fewer employees than the recent peak of 180. □

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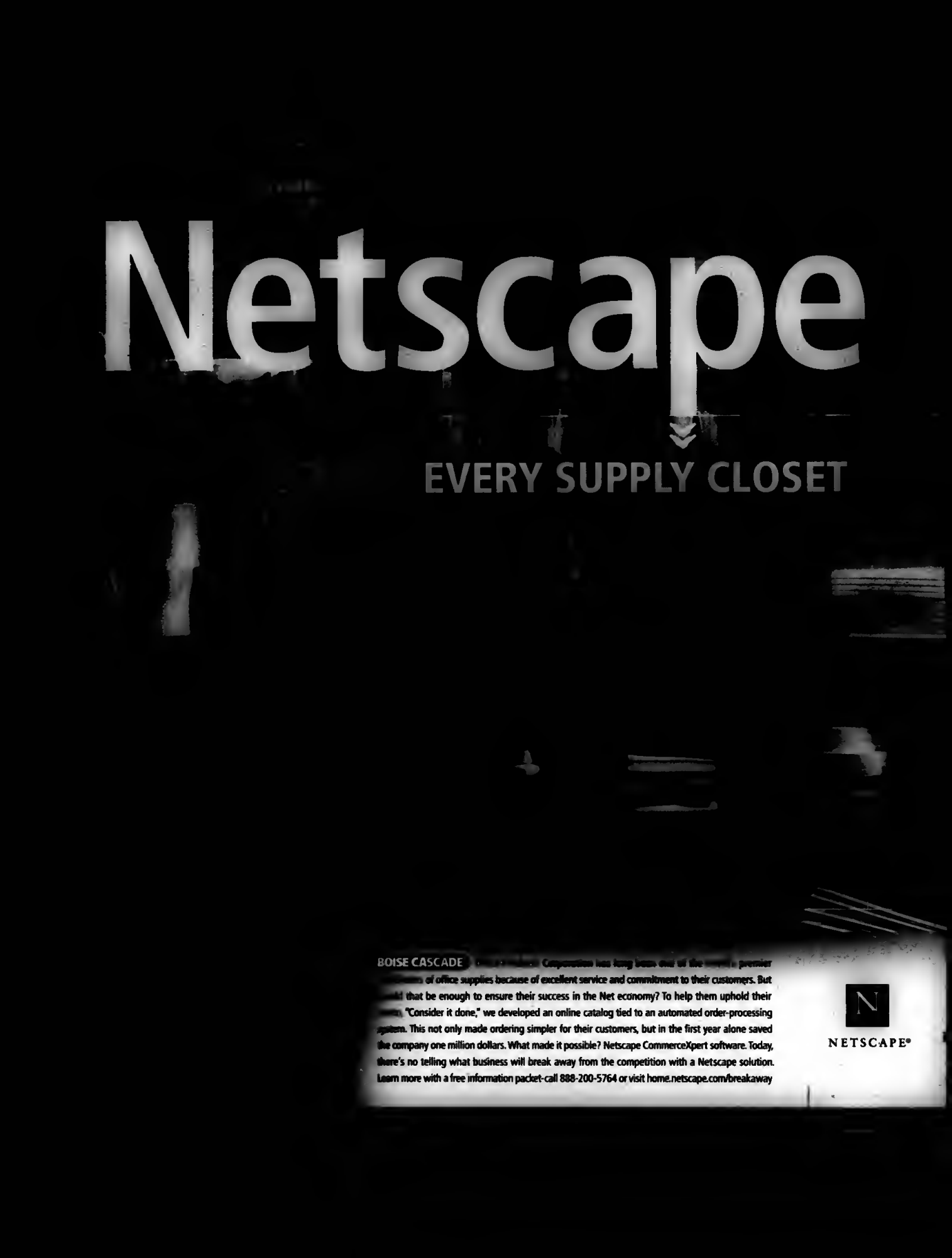
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Briefs

'NET POINT

Statistics for the official U.S. Open Web site

1998	
Total hits	382M
Total page views	242.1M
Total visits	10.3M
1997	
Total hits	63.6M
Total page views	7.1M
Total visits	800,000

Source: IBM, which developed the U.S. Tennis Association site

Netscape plug-in

Netscape Communications Corp. has announced a free software add-on that will let users of Microsoft Corp.'s Internet Explorer browser opt for Netscape's "Smart Browsing" feature, which lets users gain access to World Wide Web sites by typing generic words. Users can also opt for Netscape's search engine and WebMail and gain quick access to its Netcenter Web site.

Netscape expects to release the browser plug-in by the end of this month.

FrontPage 2000 ready

Microsoft unveiled the final feature set for its FrontPage 2000 Web site creation and management tool. New features will let users choose from 60 predesigned themes that can be customized to create different looks for a site and create a database of forms, among other things.

The tool is expected to ship early next year at a retail cost of $149.

Web procurement

MCI Systemhouse, a division of MCI WorldCom, Inc. in Jackson, Miss., has announced Internet Procurement Automation, technology that supports business-to-business procurement over the Internet. MCI Systemhouse will partner with Ariba Inc., a software maker in Walnut Creek, Calif.

Web database helps doctors fight cancer

▸ *Expedites matches of patients and drug trials*

By Sharon Machlis

AN EXTRANET connecting physicians with pharmaceutical company data is helping hundreds of doctors find new cancer drugs for their patients.

Linking data about patients and drug tests may seem simple enough. But in the paper-based world of health care, using a database to cross-match patient symptoms with ongoing drug trials is a major technology leap.

"It sounds bizarre when you tell people how things are done in health care, because it's so archaic," said Dr. John Benear, president of Cancer Care Associates, an oncology practice in Tulsa, Okla.

For example, many patients who might benefit from drugs in clinical trials today may have to rely on luck. It's often a matter of chance that a doctor reads about the particular trial, remembers the project and thinks of a particular patient as an ideal candidate.

"Web-based applications were a perfect solution"

Each of the more than 300 new cancer-fighting drugs that pharmaceutical companies are expected to introduce this year must first be tested in limited trials before the federal government will approve them for general use. And there are another 1,000 or so in the pipeline.

But finding patients who might benefit from participating in trials of new drugs hasn't been easy, because doctors typically keep track of such new tests with paper lists. Then they try to match patients in their practice with the drug tests in progress — sometimes leaving patients in mid-exam to check lists.

"No doctor can keep in his mind all these trials," Benear said. Now, less than than 5% of all adult cancer patients participate in drug trials, even though Benear believes many of the new drugs are likely to be helpful. (Pharmaceutical companies are getting better at targeting their research, he said.)

"It's a very sad reflection," said Bill McKeon, vice president of American Oncology Resources, Inc. (AOR), a medical management company in Houston that helps its doctors participate in drug trials. "[World Wide] Web-based applications and databases were a perfect solution for this."

Web database, page 42

Procurement app tracks expenses

By Carol Sliwa

Some companies that want to enable their employees to buy goods and services online will be able to let them also report their travel expenses using one application.

Ariba Technologies, Inc. last week became the latest software maker to combine the two business functions, with the latest version of its Operating Resource Management System. It features a travel-and-entertainment reporting module to go with its Web procurement package.

But though this may be a natural extension of Sunnyvale, Calif.-based Ariba's product — given the workflow and approval processes needed for both systems — it is hard to gauge what the demand will be for a combined system.

Expenses, page 42

CUSTOMER SERVICE

Web-based options abound

By Barb Cole-Gomolski

WORLD WIDE WEB-BASED customer-service systems are proliferating, leaving companies confused about which to choose and facing the task of integrating disparate systems.

Several companies recently announced systems that respond to customer E-mail over the Internet, including Brightware in Novato, Calif.; Mustang Software, Inc. in Bakersfield, Calif.; and newcomer Kana Communication, Inc. in Palo Alto, Calif. Other products in this space include chat systems and knowledge bases that customers can query.

"There are a lot of [software] companies chasing different parts of the [customer-service] pie," said Christopher Fletcher, an analyst at Aberdeen Group, Inc. in Boston. "There is no one-size-fits-all product in this space."

The draw of Web-based cus-

Options, page 42

'I can quote you that price right now'

▸ *Insurer to link older computers to Web*

By Thomas Hoffman

COMPETITIVE PRESSURES are forcing insurance companies to outfit their salespeople with laptop computers so they can access policy and other information customers request during sales calls.

But connecting salespeople to customer and product information housed in older mainframes is no easy task, as most insurance companies are discovering in their efforts to provide Internet access to stovepiped systems. "Tying together these systems from the back end has been very diffi-

Insurer, page 42

Options

CONTINUED FROM PAGE 41

tomer service is cost savings. According to Meta Group, Inc., a consultancy in Stamford, Conn., a typical Web-based customer-service transaction costs a company pennies, but a phone call runs about $5.

A handful of developers — including Acuity Corp. in Austin, Texas, Business Evolution, Inc. in Princeton, N.J., and EShare Technologies, Inc. in Commack, N.Y. — sell systems for chatting with customers on the Web. However, some users who have implemented them say chat systems are slower because each party has to wait while the other is typing.

Net Effect Systems, Inc. in North Hollywood, Calif., next month will release Neware, software designed to solve the chat bottleneck by letting customer-service agents engage in multiple customer chat sessions simultaneously. The software also has a feature that automatically captures the information exchanged between the agent and the customer.

Camera maker Vivitar Corp. in Newberry Park, Calif., began offering Web-based customer service for its line of digital cameras by adding a frequently asked questions (FAQ) box to its Web site last April.

But as the FAQ list grew, it was clear the company would have to devote a lot of resources to maintain it. "We were crunching and typing all day on the FAQ, and I could not unleash a bunch of folks to work on it," said senior product manager Tom Pine.

Instead, Pine outsourced maintenance of the FAQ to Right Now Technologies, Inc. in Bozeman, Mont., which used it to build a searchable knowledge base that it maintains on its servers for about $350 per month. The system handles about 30 assists per day — about what a customer-service representative can do on the phone "but for a fraction of the cost," Pine said. Last week, Right Now announced Version 2.0 of its Right Now Web software, which lets companies set up their own 'net-based customer knowledge bases.

Adding to the confusion over Web-based customer service, most companies that have moved to the Web are still supporting people by phone, too. "Today, [many sites] are implementing two discrete systems: one for the Web and one for the call center," Fletcher said. Back-end integration between call center management systems and Web-based customer-service systems is improving, but it still isn't guaranteed, he said.

"Customers want both," said Barbara Aichele, a customer-service representative at Dexter Adhesive & Coating Systems, Inc. in Bay Point, Calif. "They want to be able to get pricing via E-mail, but when they have a problem, they want personal service [by phone]," she said. To accommodate such needs, Dexter gives customers the option of faxing, E-mailing or calling with orders and concerns. Giving agents the ability to view all customer data in one place is a goal but not yet a reality, Aichele said. □

UPGRADE PARADE

Product	What's new	Pricing
Right Now Web	Notifies users via E-mail when open trouble tickets are resolved	$6,000-$12,000 or $250-$450 per month as a hosted service
Neware	Lets agents engage in real-time chats with multiple customers simultaneously	To be announced next month, when the product ships
Kana Customer Messaging System	Suite of new applications for Web-based customer service	Not available

Insurer

CONTINUED FROM PAGE 41

cult," said Octavio Marenzi, a research director at Meridien Research, Inc., a Newton, Mass.-based financial services and technology research firm.

One insurance company, Philadelphia-based Cigna Corp., thinks it has found a relatively inexpensive solution to this problem. The company's Hartford, Conn.-based corporate insurance unit has installed World Wide Web and application server connectivity software for less than $50,000. It is expected to deliver fast results when brokers begin using an extranet to provide investment services beginning at year's end.

For example, Cigna will use a software package called AppServer from Bedford, Mass.-based Progress Software Corp. that essentially takes a shortcut through Cigna's wide-area network to locate and retrieve policy and other information. Without AppServer, it might take a broker 45 minutes to access all the policy information requested by searching Cigna's WAN, said Dave Choleva, director of technology for the company's corporate insurance group. AppServer will let brokers download the information in 30 seconds or less, Choleva said.

ALL-IN-ONE

"It's one-stop shopping for the entire result set," Choleva said. That's important for the 50 brokers who will begin using the extranet later this year, because they will be connecting to a Web server in Vorhees, N.J., but typically using browsers to access policy information from a Progress database in Hartford.

"We want to leverage legacy systems as much as possible," Choleva said.

The extranet system was built using a Progress Software development tool kit called Webspeed. Choleva said Cigna selected Webspeed because the company was already using a Progress database and other software. "We didn't want five different [extranet] applications written in five different [languages]," Choleva said.

Using the extranet, a Cigna broker at a client site will be able to access the extranet for 401(k) balances and other information. An alternative to this approach — calling into a voice-response unit system — "is a pain," said Choleva, because customers can't see how their assets are spread out across different investment vehicles. □

Expenses

CONTINUED FROM PAGE 41

So far, only one of Ariba's customers, Canadian Imperial Bank of Canada (CIBC), has said it will use the new travel-and-entertainment module along with the World Wide Web procurement package. The bank anticipates the procurement package will help streamline costs by $32.1 million.

But reducing costs isn't the main driver for CIBC's travel expense reporting system: "It's to understand where you're spending money so you've got good negotiation information with the suppliers," said Jack Miles, CIBC's chief purchasing officer. "If we can negotiate some rates that are 5% or 10% better, you're talking significant dollars."

Miles estimated that CIBC spends $41.7 million per year on travel. Because CIBC already is integrating the Ariba software with its PeopleSoft, Inc. financial system, the links are already in place for the new travel expense module.

Others are still mulling procurement packages, which have been slow to take hold in the marketplace because they are complicated and expensive to install.

TransAmerica Corp. in San Francisco bought Ariba's product to let employees buy office and computer equipment, business forms and other supplies online. Although the company plans to look at the integrated travel expense reporting module and can see its potential value, it probably won't get around to evaluating it until next year, said Maureen Breakiron-Evans, vice president of control and services at Transamerica.

Travelers can download bills from their corporate credit cards and automatically enter the information into reports so they don't have to write or key in their expenses. They can then route them for approval based on certain business rules, such as a daily spending limit for meals.

Ariba is by no means the only company to think about linking procurement with a travel-expense reporting system. Other companies that are taking a similar route include Concur Technologies, Inc., Extensity, Inc., RightWorks Corp. and Clarus Corp., analysts said.

Analysts said they expect enterprise resource planning (ERP) vendors such as SAP AG, PeopleSoft and Oracle Corp. to enter this market, too.

"I think the ERP vendors will have a natural first right of refusal with their existing customer base to extend what they already have," said Roy Satterthwaite, an analyst at Gartner Group, Inc. in Stamford, Conn.

"The question becomes: Do you buy point solutions or an integrated solution?" said David Alschuler, an analyst at Aberdeen Group, Inc. in Boston. □

Web database

CONTINUED FROM PAGE 41

Working with TVisions, a Cambridge, Mass., Internet consulting firm, AOR developed a database for clinical drug trials. Physicians in AOR's network enter basic demographic information about each cancer patient (gender and age, for example), where in the body the cancer is located and what stage the disease is in. The data is already in a patient's regular file but is entered separately into the new AOR extranet system, called SecureNet, which is open only to doctors who use AOR's services. Benear said the data-entry takes little additional time.

Each time AOR learns of a new drug trial, information about the trial is entered in the system, which then scans all patient information for preliminary matches. Doctors are E-mailed if any of their patients might match the trial.

PATIENT'S CHOICE

Patients can decide if they want to try a new therapy. Under the old system, McKeon said, some patients who decided to participate in trials found that the projects had closed by the time all the paperwork was filled out. With SecureNet, physicians can be notified when a trial program is full — or tell patients that they probably need to decide quickly because only a few slots are left.

For security and privacy reasons, all information going in and out of the database is encrypted, and only a patient's initials and identification number (not a Social Security number) are entered into the database, which is accessed over the Internet, said Ralph Folz, president of TVisions.

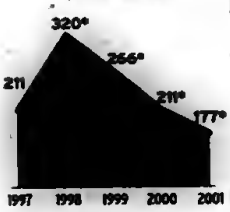
"It's allowed us to participate in trials we wouldn't have otherwise found," said Benear, an early beta tester of SecureNet. And he can cite at least one patient he believes "would not be alive if she couldn't get into a research trial." □

The Enterprise Network

LANs + WANs + Network Management

Briefs

Worldwide switched FDDI port shipments
(In thousands)



*Projected

Source: International Data Corp., Framingham, Mass.

Fore switch

Cisco Systems, Inc. in San Jose, Calif., has announced a switch that enables information technology managers to combine voice, data and video traffic for transmission over a wide-area network. The vendor's ICX 6150 uses Asynchronous Transfer Mode technology to set different levels of service across a network. It will ship in the fourth quarter with a $22,000 list price.

Foundry switch

Foundry Networks, Inc. in Sunnyvale, Calif., next week will unveil FastIron II, a chassis-based switch that can be equipped to support 72 10/100M bit/sec. ports, as well as two to eight Gigabit Ethernet ports. It can handle 23 million packet/sec. It is available in three models, with pricing ranging from $14,495 to $26,495.

Workflow lowdown

A new study indicates workflow market is fragmented

Company	Market share
JetForm, Inc.	16%
Edify Corp.	13%
FileNet, Inc.	11%
Staffware	11%
Eastman Software, Inc.	7%
Keyfile Corp.	4%
IBM	3%
Others	35%
Total market: $262.9 million	

Source: Dataquest, San Jose, Calif., Sept. 1998

Utility makes service top goal

▸ *Uses software to consolidate customer data*

By Cynthia Bourrellis

THE DEREGULATION of gas utilities means more choice for customers and opportunities for more companies.

Suppliers and distributors that get close to their customers may have an advantage in that new market, and that's why Peoples Energy Corp., a $1.2 billion holding company in Chicago, is investing in a new software system that makes customer service easier and lets the company follow its customers' changing usage patterns.

Peoples has 1,300 representatives who use IBM 3270 dumb terminals to take orders and fulfill service requests. The terminals are supported by an old, yet reliable, MVS-OS/390 mainframe from IBM.

The current system doesn't let customer service staffers use one interface to access various applications when taking a customer call. Nor does it effectively support new services and applications.

That's why Peoples is investing in the Customer Information Services (CIS) software from PricewaterhouseCoopers.

Utility, page 44

MARK HARMEL

Peoples Gas' John Cadogan: "If our system isn't available, [customers] could go elsewhere ... because there are alternative sources of energy"

Judy Wilk (seated) and Kiet Tran say Notes-based E-mail tracking makes agents more accountable

Notes app helps bank boost service by phone

By Roberta Fusaro

KEYCORP's J. A. "Chip" Hernandez may have spent a few sleepless nights in the past year shepherding 8,000 CC:Mail users to Lotus Notes. But he said the Notes applications the financial institution built during the migration were worth all the tossing and turning.

Key Services Corp., the technology arm of Cleveland-based KeyCorp, has built several Notes-based intranet applications and a customer service application designed to improve response to E-mail queries and to prep its year-old World Wide Web site for online banking.

KeyCorp this summer rolled out its Online E-mail Management Program to visitors of the $70 billion financial institution's Web site and to call cen-

Notes, page 44

REVIEW▸
DSL and cable modems

The speed is great, if you can get it

By Chris DeVoney

ARE YOUR telecommuters or remote offices suffering from the dial-up modem blues? Digital Subscriber Line (DSL) service or cable modems can help them forge a blazingly fast connection to the Internet or the corporate LAN. With either service, graphics-laden World Wide Web pages or large files that took minutes to move over dial-up connections appear in seconds.

For individual telecommuters, cable modems may offer a bargain-basement combination of medium-speed service and price. DSL service, which costs more, is better for remote offices because it is better at supporting multiple users at the same location.

Although users of either technology can expect faster remote access, they also may have to deal with some Internet security

Review, page 45

Use fiber to link PCs? You bet!

▸ *Users find its price now similar to copper*

By Matt Hamblen

AT GEORGE WASHINGTON University, bringing fiber-optic cable to 4,800 desktops a year ago cost about the same as using copper cable — but fiber provides enough bandwidth for at least 10 years, about three times longer than copper.

In fact, about 70% of companies would follow suit if shown that fiber-optic cables to the desktop cost the same as copper cabling, according to a survey of 200 international companies soon to be published by Sage Research, Inc. in Natick, Mass. Yet many still believe that fiber costs more, analysts said.

"Fiber to the desktop is really expensive in the minds of people," said Matt Grady, an analyst at Sage.

Nonetheless, companies increasingly are looking to use fiber in connecting PCs to company networks — not just for use in campus LANs — because of recent advancements in simpler, less-expensive technology, analysts said.

For example, Minneapolis-based 3M Co. offers a new cut-

Fiber, page 44

Net analyzer now Windows-based

▸ *Updated Sniffer easier to install and use*

By Cynthia Bournellis

NETWORK ASSOCIATES, INC. soon will release a Windows-based network analysis system for corporate networks that will let information technology organizations take a more proactive approach to analyzing network traffic in real time.

The Santa Clara, Calif., company will release Sniffer Total Network Visibility 2.0 at Networld/Interop '98 in Atlanta next week.

It combines Remote Monitoring protocols, which enable real-time network and applications troubleshooting, with decision-support systems technology, which transforms data into statistics for reporting and analysis.

Until now, Sniffer was DOS-based. The Windows-based package includes wizards and templates that should make it easier to install and use.

Sniffer should appeal to any users who tend to consider "probing" products too complicated to install and too difficult to learn, said Mike McConnell, an analyst at Infonetics Research, Inc., a consultancy in San Jose, Calif.

INTEGRAL KNOWLEDGE

"Users want to isolate faults and fix them, and it is important for IT to do reports on their network, so that they can be proactive," said Elisabeth Rainge, an analyst a Framingham, Mass.-based International Data Corp., a sister company to *Computerworld*.

Knowing the ins and outs of its network is crucial for Prudential Securities, Inc. in New York. A heavy load of network traffic runs over the company's IBM SNA, a seven-layer network that supports a Notes database worldwide.

"My main concern is troubleshooting problems related to user response times," said Andre Salfarlic, a network analyst at Prudential.

He said Sniffer would provide administrators with a single tool that will let them probe more deeply into the various network layers to view the relationships among server response times and applications.

Sniffer's ability to delve into a network will help IT reduce network downtime and traffic delays, which currently lead to millions of dollars in lost productivity and revenue per year, according to Infonetics. □

Notes

CONTINUED FROM PAGE 43

ter agents at three product departments. Project managers hope to give call center agents in the rest of the departments (about 10 to 15 in all) access to the application by year's end.

Also by year'a end, the bank will deploy several other Web-based projects that are built on Notes and Domino.

The E-mail customer service application collects customer requests at the Web site aod routes and sorts them in an arrival queue. A customer service agent logs on to the system and accesses the oldest messages off the list by tapping a "Get Next" button.

IMPROVEMENTS

Judy Wilk, a project manager for customer contact systems at KeyCorp, said that before the system was installed, call center agents used a regular Notes mail package that had no central audit trail and no way of distributing call center assignments. "Now, a [customer service agent] owns that message. Their name is stamped on it — unless they forward it. And if they're forwarding it, that'a recorded too. We can track case histories, and if the same types of cases are being forwarded to the same people," routing rules can be adjusted, Wilk said.

Kiet Tran, department manager of the customer contact systems department, said the system makes call center agents accountable and was necessary for the bank. KeyCorp was meeting service levels and goals, but the bank expects to increase its Web presence for service, much like peers such as Charles Schwab & Co., Tran said.

Eventually, the company will mine centralized E-mail messages for customer data and contact information, he said. The only flaw in the rollout was spotty support from Lotus Consulting. Tran attributed that to geography — consultants were in Atlanta. He added that the group sometimes didn't deliver code on time.

Hernandez, vice president of Key Services, said KeyCorp has been using Notes for about five years, primarily for groupware functions.

Last January, the company begao a migration from Lotus Development Corp.'s CC:Mail, TOSS (an independent proprietary system) and IBM'a OfficeVision to compensate for year 2000 problems and consolidate administration.

"We decided that [maintaining] fewer systems [was] better than more," he said.

The company now has 14,000 Notes seats. It is 500 users shy of completing the migration of 8,000 CC:Mail users to Notes, and the company has moved 9,000 TOSS users to either OfficeVision or Notes, depending on users' business environment.

Year 2000 issues and support costs were the main drivers for the migration, which was proposed last year, Hernandez said.

Hernandez said KeyCorp next will aggressively use Notes/Domino applications to expand on paperless office initiatives the bank already is undertaking.

"We're looking at things like payroll notices, expense reimbursements, 401(k) statements, travel requests and new user setup," he said. Notes 5.0's new Web-based interface plays a role toward that end, he said. □

Utility

CONTINUED FROM PAGE 43

Scheduled to go online in June, CIS would put all customer data in one place so service representatives can help customers in one phone call.

CIS also can take advantage of new technologies. Peoples will add software that executes remote meter readings, plus a voice-response service that prompts customers to different menus for help.

CIS also will run applications that provide call center support and applications for billing and accounts receivable.

CUSTOMER FOCUS

Peoples executives said they hope CIS will allow them to quickly respond to the market'a needs.

"As our industry changes, it'a important for us to focus on our customer as opposed to the premise [dwelling] we are talking to," said Joe Gurga, project director of CIS at The Peoples Gas Light & Coke Co., a subsidiary of Peoples Energy that distributes natural gas. "CIS is customer-based; the mainframe is premise-based."

The new system won't replace the mainframe, which will continue to do processes such as batching and archiving.

However, satisfying customers in record time won't guarantee loyalty in a deregulated world. "If Peoples is going to hold on to its customers, it is to their advantage to know more about the individual customer," said Mike Heim, a utilities analyst at A. G. Edwards & Sons, Inc. in St. Louis.

To help Peoples do that, the new system will keep a record of historical data on customer usage patterns, on-site service and payment and billing.

Tracking service calls, for instance, could increase sales.

"If by coming to your house, we see that you use an electric dryer, we could offer you a $50 rebate to buy a gas dryer," said John Cadogan, a project manager at Peoples Gas.

Today, there are about 1 million customers in a pilot program in Chicago and its northern suburbs. To make sure the new system can handle future growth, Peoples realized it would need a strong set of tools that would monitor CIS and gauge the performance of new processes.

So the company turned to Platinum Technology, Inc.'a ProVisioo software, which will monitor the databases, operating systems and servers that will support CIS.

Cadogan said he expects to see 20% more uptime for the mainframe, as well as fewer failures occurring at single points within the network. "If our system isn't available, [customers] could go elsewhere . . . because there are alternative sources of energy," he said. □

Fiber

CONTINUED FROM PAGE 43

ting and polishing tool that eases installation of its Volitioo Cabling System. That is perhaps the biggest advance in making fiber-optic cable to the desktop cost effective, said David Dines, an analyst at Aberdeen Group, Inc. in Boston.

Consider that one big drawback to fiber-optic cabling has always been the rarity of fiber-optic network interface cards. 3M has replaced those cards with less costly media converters, Dines added.

Fiber's longevity was key to George Washington University'a decision. "When my bosses saw the copper vs. fiber comparison, they said, 'Let'a do fiber because the growth potential is good,' " said Guy Jones, director of technology at the university in Washington. "And the new fiber allows us at least a 60-fold increase in speed right now — and even in 10 years, it will remain much faster."

The university spent about $5.9 million to set up about 4,800 connections, a backbone and 11 hub closets to serve 80 buildings. The hubs and backbone will serve another 4,000 connections expected in the next two years.

Copper technology would have required 180 hubs because it requires a hub every 100 meters; fiber requires one every 2 kilometers. And studeots connected to the fiber-optic cable get 2M to 3M bit/sec. of speed compared with what might have been only 28K bit/sec.

Fiber might not make sense for every office or university campus, Dines and Jones said. In Washington, space for hub closets was at a premium, but they might be plentiful at a campus in the Midwest, so building more hub closets would be more affordable, Jones said.

"If your copper plant is working fine, why change?" Dines added. □

Typical price to connect 500 desktops*

Volition (fiber)	$305,850
Volition with media converters	$429,000
Category 5E (copper)	$182,000
Category 6 (copper)	$202,000
Standard fiber	$788,000

*Includes cables, labor, switches and electronics

Source: 3M Corp., Austin, Texas

Cabletron needs to be a switch hitter

▸ *Market shift turned tide against company*

By Bob Wallace

THE COMBINED IMPACT of missing the industry shift to switching and poor marketing are the main reasons Cabletron Systems, Inc.'s profits have plummeted 75% in the past year and sales are flat.

In an interview with *Computerworld*, Cabletron CEO Craig Benson conceded that the hub and switch company lost customers to other vendors when switching gained momentum. Cabletron had limited, expensive product models. Benson also said the company needs to become an aggressive marketing force.

"Two years ago, shared media products accounted for 70% of our business. Now it's only 14%," Benson lamented. "Fifty-six percent of our business went out the door."

Benson wouldn't say why Cabletron failed to retain most of its hub customers as switch customers. However, many analysts said it was a timing issue.

"They were certainly late with switching, but there's still business to be had in the large corporate user market," said Martin Pyykkonen, an analyst at CIBC Oppenheimer's San Francisco office. Bay Networks, Inc. was also late with switching, he noted.

Poor marketing also hurt Cabletron, analysts concurred.

"Cabletron has historically been a product and sales company, but the market has shifted on them," said Craig Johnson, president of PITA Group, a Portland, Ore., consultancy. "They need to work much harder on marketing, largely because they are up against marketing powerhouses like Cisco [Systems, Inc.] and 3Com [Corp.]"

One loyal Cabletron user shared Johnson's view.

"I would agree 100% that they need to work on marketing," said Sean Gilbert, manager of information services at credit-card authorizatioo giaot Cardservice International, Inc. in Agoura Hills, Calif. As far as marketing is concerned, he said, "the [product] visibility is simply not there."

To help fix the problem, Cabletron is aiming a new sales program at seven key vertical markets. The vendor will bundle software, hardware and support services into industry-specific packages and price the packages below the cost of buying the components individually.

"Marketing complete packages to users in these markets should really help them," Gilbert said. Focusing on marketing just one or two key products isn't the way to go, he added.

Analysts said the vertical industry marketing approach will prove beneficial.

"I think it would be helpful in raising their product profile among users," said Paul Weinstein, an analyst at Credit Suisse First Boston in San Francisco.

Pyykkonen said Cabletron has a fighting chance to win new business from big companies.

"3Com is focusing on the edge of the network, and Bay has become part of Nortel," Pyykkonen said. "In many ways, Cabletron will be selling into the Cisco incumbency."

That may be a tall task for the Rochester, N.H., networking vendor. It won't have luck selling into Cisco shops, Weinstein predicted, "because Cisco accounts are very entrenched." □

Review: DSL and cable modems

CONTINUED FROM PAGE 43

issues and the challenge of getting the service because neither one is available in many areas. But in spite of the problems, the services are worth the cost.

I tested US West, Inc.'s DSL service and TCI.Net, the Tele-Communications, Inc. (TCI)-branded @Home Internet Cable service, both available in Seattle. Although Asymmetric DSL (ADSL) and cable offerings may vary among regioos, the services I tried typify what the industry offers.

DSL and cable modems have several similarities. Each uses Ethernet technology, hooks to the computer via 10Base-T network interface cards and uses the TCP/IP protocol to transport data. Each uses the existing wiring at the home or office, and unlike dial-up modems, both connections are always live, meaning you don't need to dial in to an Internet provider or suffer through busy signals.

ROOM FOR DATA

DSL uses the copper telephone lines that carry voice traffic. Because the digital data fits in bandwidth above the voice traffic, you can use the same phone line for conversation and data traffic simultaneously. The DSL connection can go to an Internet provider or provide a direct link to a local corporation's network.

PRODUCT REVIEW

▸ *TCI.Net,*

TELE-COMMUNICATIONS, INC.
(888) 404-9200
www.home.net

Price: $30 per month

▸ *US West DSL & Megabit Service, US West Enterprise Service*

US WEST, INC.
(888) 634-2879
www.uswest.com

Price: From $40 per month

PROS/CONS OF THE TECHNOLOGY:

Pros: High-speed Internet/VPN access; lower price than compatible products; connection always available

Cons: Very limited availability; no built-in security

US West offers both symmetrical DSL (SDSL) and ADSL service. US West's SDSL service has speeds of 256K through 1M bit/sec., meaning you would see the same transfer rates for both sending and receiving. The 4M and 7M bit/sec. US West ADSL services run at the faster download rate — but only at 1M bit/sec. when you send. Also, the stated download rate is a minimum. In my testing, I often saw faster downloads.

Typical DSL pricing ranges from $40 per month for unlimited 256K bit/sec. access to $120 per month for 1M bit/sec. service, plus any charges by your Internet service provider if you want Internet access. A Cisco Systems, Inc. NetSpeed modem, which handles the entire range of speeds, costs an extra $200 (internal model) to $350 (external).

EXPENSIVE FOR SOME

For telecommuters or small remote offices, DSL service is pricey. But it's cheaper than the traditional alternatives. Far-slower 56K bit/sec. frame relay runs about $90 per month, and 128K bit/sec. Integrated Services Digital Network (ISDN) service starts at $60 per month. For a small Web farm or remote office, you can get two 1M bit/sec. DSL lines ($240) for less than a single 1.54M bit/sec. T1 line (about $350).

TCI's cable modem-based offering of the @Home Internet service is priced more for consumers at $30 per month, which includes a modem.

Generally, cable modems have a download rate of 1.5M bit/sec. and a 768K bit/sec. upstream rate. The actual speed will vary because other cable modems on your cable loop share the bandwidth from the cable head. Because there are few modems on my loop, I saw very little speed degradation.

I found that almost all Internet and virtual private network (VPN) activity through cable modems and DSL was significantly faster than it was even with the 128K bit/sec. ISDN service I normally use.

For example, the front page of the *Computerworld* Web site took 25 seconds to load with a 33.6K bit/sec. modem. A Web page that showed a 330K-byte map from a weather site took about 90 seconds with the same modem.

The DSL and cable modems did the same tasks in four to five seconds. Downloading a 1M-byte file took about 18 seconds for the 256K bit/sec. DSL modem and 11 seconds on the cable modem. That's five times faster than with an ISDN connection and six to 12 times faster than with a 33.6K bit/sec. modem.

Installing the technology is relatively simple. Both US West and TCI can install the lines and the equipment and configure the computer in less than 90 minutes.

ACCESS SNAG

Although both services are very attractive, the biggest problem is their very limited availability. Only about 5% of the homes and offices in the U.S. currently are eligible for the services, which are primarily available in metropolitan areas. For example, DSL subscribers must be within 15,000 to 18,000 feet of a switching office where the switch is DSL-enabled.

Both technologies also have a slightly dark side: security. As with any computer connected directly to the Internet without a firewall, users must be cautious about sharing files and printers.

Also, Windows' Network Neighborhood takes on a new meaning with certain cable modems when your system broadcasts its NetBIOS presence to other computers, allowing anyone else on the cable loop to see your computer's name and a list of shared resources. But my Motorola modem blocked that broadcast.

Neither technology offers built-in security for a VPN, which interests many corporate information technology managers. For IT managers who want a complete solution, @Home is beta-testing a dedicated VPN service called @Work for Office Remote. Information about that service will be available later this year.

With instant access and fast transfer rates, both DSL and cable modem services will provide work-at-home employees or remote offices with the fighting edge for harnessing the Internet or corporate network. The biggest roadblock is simply getting the service. □

DeVoney is a reviewer in Seattle. His E-mail address is chrisd@cybercritic.com.

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Software

Databases • Development • Operating Systems

Briefs

SAP for publishers

SAP AG announced last week another industry-specific iteration of its R/3 enterprise resource planning software, this time modified for the print and video mass-media sector. SAP Media is built around the core R/3 elements — SAP Financials, SAP Human Resources and SAP Logistics — but also includes two new media-industry-specific components, Advertising Management and Media Sales and Distribution. SAP Media doesn't include publishing production systems, such as text or graphics editors, but offers interfaces to third-party systems, an SAP official said.

Integration help

Sybase, Inc. in Emeryville, Calif., plans a release by year's end of its Enterprise Data Studio software, which helps integrate databases and packaged applications from different vendors on various platforms in multiple locations. Sybase also announced EnterpriseConnect, which will join data integration and replication technologies so companies can integrate distributed information systems.

Application acceptance

Does your company use or plan to buy enterprise resource planning software?

- Already uses
- Being deployed now
- Evaluating products
- No plans for ERP

Base: 117 IT managers and business users who are members of The Data Warehousing Institute and were surveyed in July

Source: The Data Warehousing Institute, Gaithersburg, Md.

TWA pilots now have more flexibility in getting the schedule they want instead of preset schedules

Smooth bottom-line landing

▸ *Pilot-scheduling system pays off for TWA*

By Stewart Deck

EVERY MONTH, airlines go through a juggling act that any circus would showcase in its center ring. They have to fill a schedule of 18,000 flights using 2,500 pilots while keeping an eye on pages and pages full of regulations.

LOGISTICS SOFTWARE

Sound easy?

OK, toss in the fact that pilots want to set their own schedules, and each one gets ranked in order of seniority.

"We used to build the schedules almost by hand," recalled Mary Pedrosa, manager of crew allocations at Trans World Airlines (TWA) in St. Louis. "It took five people between four and five business days to put together the schedule each month — it was hideous."

Bob Tate, a senior technical specialist at TWA, remembered those days with a groan. "We built the schedules using a 1960s IBM mainframe, but we had to put in so many exceptions, and then so many corrections kicked out that it was faster to do much of it manually in the end," Tate said.

So this summer, TWA began using a system from Montreal-based Ad Opt Technologies, Inc. that lets the pilots fill out their monthly schedule requests over the Internet. It weighs all of

TWA, page 48

Baan edges to component structure

▸ *Application suite breakout to start next year*

By Craig Stedman

THE BAAN CO. is finally taking its first step toward the promised land of tightly integrated applications that also can stand on their own two feet.

But users of the Dutch vendor's packaged business applications will still have to wait until next year for Baan to reach the point where its software no longer has to be treated as one big monolithic package.

Like rivals such as Germany's SAP AG, Baan is reinventing its back-office application suite as a series of independent components. That process began late last month with the belated shipment of BaanERP, a new release that provides the technical underpinning needed to decouple the company's applications from one another.

The component approach could make software installations and upgrades less of an all-at-once tractor pull for users.

"It's not proven yet, but if this works as advertised, then we don't have to go through major implementations anymore," said Dennis Torrell, chief information officer at Sensormatic Electronics Corp. in Boca Raton, Fla.

Instead, the $990 million maker of security systems for retailers and other businesses could upgrade a particular application while leaving others as is. For example, Torrell said

Baan, page 48

Y2K reconciliation tool saves in labor costs

By Thomas Hoffman

ONE OF THE more time-consuming tasks within year 2000 projects is manually matching heavily customized code in packaged applications with the year 2000-ready versions of the packaged software that come out, analysts said.

Fina Oil and Chemical Co. has found a way around that. The $4.5 billion Plano, Texas-based petrochemical firm is using a software tool that is saving it $133,000 in labor costs by automatically reconciling different releases of the complex human resources management system (HRMS) it relies on.

Version Merger, a reconciliation tool from Princeton Softech, Inc. in Princeton, N.J., automatically matches the customized code with the packaged software. Although Version Merger can repair date-sensitive code, Fina Oil has opted to fix the customized parts manually or with another tool.

TONS OF CHANGES

Since Fina Oil purchased the HRMS from Integral Systems, Inc. in 1990, it has made "hundreds, if not thousands" of customized changes to the software to meet its business requirements, said Gary Bussell, manager of application systems at Fina Oil, a unit of Petrofina S.A. in Brussels.

The HRMS is the largest, most complex application the company runs, comprising 338 Cobol modules and more than 31,000 Cross System Product (CSP) source modules, said Liz Chapman, a senior program-

Reconciliation, page 49

Software

Databases • Development • Operating Systems

Briefs

SAP for publishers

SAP AG announced last week another industry-specific iteration of its R/3 enterprise resource planning software, this time modified for the print and video mass-media sector. SAP Media is built around the core R/3 elements — SAP Financials, SAP Human Resources and SAP Logistics — but also includes two new media-industry-specific components, Advertising Management and Media Sales and Distribution. SAP Media doesn't include publishing production systems, such as text or graphics editors, but offers interfaces to third-party systems, an SAP official said.

Integration help

Sybase, Inc. in Emeryville, Calif., plans a release by year's end of its Enterprise Data Studio software, which helps integrate databases and packaged applications from different vendors on various platforms in multiple locations. Sybase also announced EnterpriseConnect, which will join data integration and replication technologies so companies can integrate distributed information systems.

Application acceptance

Does your company use or plan to buy enterprise resource planning software?

- Already uses
- Being deployed now
- Evaluating products
- No plans for ERP

Base: 117 IT managers and business users who are members of The Data Warehousing Institute and were surveyed in July

Source: The Data Warehousing Institute Gaithersburg, Md.

TWA pilots now have more flexibility in getting the schedule they want instead of preset schedules

Smooth bottom-line landing

▸ *Pilot-scheduling system pays off for TWA*

By Stewart Deck

EVERY MONTH, airlines go through a juggling act that any circus would showcase in its center ring. They have to fill a schedule of 18,000 flights using 2,500 pilots while keeping an eye on pages and pages full of regulations.

LOGISTICS SOFTWARE

Sound easy?

OK, toss in the fact that pilots want to set their own schedules, and each one gets ranked in order of seniority.

"We used to build the schedules almost by hand," recalled Mary Pedrosa, manager of crew allocations at Trans World Airlines (TWA) in St. Louis. "It took five people between four and five business days to put together the schedule each month — it was hideous."

Bob Tate, a senior technical specialist at TWA, remembered those days with a groan. "We built the schedules using a 1960s IBM mainframe, but we had to put in so many exceptions, and then so many corrections kicked out that it was faster to do much of it manually in the end," Tate said.

So this summer, TWA began using a system from Montreal-based Ad Opt Technologies, Inc. that lets the pilots fill out their monthly schedule requests over the Internet. It weighs all of

TWA, page 48

Baan edges to component structure

▸ *Application suite breakout to start next year*

By Craig Stedman

THE BAAN CO. is finally taking its first step toward the promised land of tightly integrated applications that also can stand on their own two feet.

But users of the Dutch vendor's packaged business applications will still have to wait until next year for Baan to reach the point where its software no longer has to be treated as one big monolithic package.

Like rivals such as Germany's SAP AG, Baan is reinventing its back-office application suite as a series of independent components. That process began late last month with the belated shipment of BaanERP, a new release that provides the technical underpinning needed to decouple the company's applications from one another.

The component approach could make software installations and upgrades less of an all-at-once tractor pull for users.

"It's not proven yet, but if this works as advertised, then we don't have to go through major implementations anymore," said Dennis Torrell, chief information officer at Sensormatic Electronics Corp. in Boca Raton, Fla.

Instead, the $990 million maker of security systems for retailers and other businesses could upgrade a particular application while leaving others as is. For example, Torrell said

Baan, page 48

Y2K reconciliation tool saves in labor costs

By Thomas Hoffman

ONE OF THE more time-consuming tasks within year 2000 projects is manually matching heavily customized code in packaged applications with the year 2000-ready versions of the packaged software that come out, analysts said.

Fina Oil and Chemical Co. has found a way around that. The $4.5 billion Plano, Texas-based petrochemical firm is using a software tool that is saving it $133,000 in labor costs by automatically reconciling different releases of the complex human resources management system (HRMS) it relies on.

Version Merger, a reconciliation tool from Princeton Softech, Inc. in Princeton, N.J., automatically matches the customized code with the packaged software. Although Version Merger can repair date-sensitive code, Fina Oil has opted to fix the customized parts manually or with another tool.

TONS OF CHANGES

Since Fina Oil purchased the HRMS from Integral Systems, Inc. in 1990, it has made "hundreds, if not thousands" of customized changes to the software to meet its business requirements, said Gary Bussell, manager of application systems at Fina Oil, a unit of Petrofina S.A. in Brussels.

The HRMS is the largest, most complex application the company runs, comprising 338 Cobol modules and more than 31,000 Cross System Product (CSP) source modules, said Liz Chapman, a senior program-

Reconciliation, page 49

Baan eyes components

CONTINUED FROM PAGE 47

he wants to bring in a new release of Baan's customer service software without touching the finance and manufacturing applications that Sensormatic also uses.

But that isn't possible, even with the release of BaanERP.

Baan, which has U.S. headquarters in Reston, Va., said it won't actually start breaking the application suite in to components until sometime next year.

OUT THE DOOR

The details on Baan's new BaanERP software

Key new features:
- First release of component architecture
- Web browser-based user interface
- Year 2000 and euro currency compliance
- Supply-chain modeling capabilities
- Streamlined order processing functionality

Supported technologies:
- Windows NT and Unix servers
- Oracle, Informix and Microsoft SQL Server databases

The company also is still working to link BaanERP and the assortment of applications it has bought for uses beyond the back office, such as sales force automation and supply-chain planning.

"What's important is that BaanERP not stand alone, and right now it does," said Joshua Greenbaum, a software analyst in Berkeley, Calif. "Baan really needs to pull itself up and get the whole product line solidified."

MORE DELAYS

BaanERP, which originally was called Baan V, was delayed for nine months while Baan figured out how to tie all of the acquired products to its flagship software. Company officials once talked about shipping BaanERP last year, and this spring it was promised for delivery in June.

Beta-tester Trojan Technologies, Inc. had hoped to go live with BaanERP early last month.

But those plans were pushed back for up to two months while the London, Ontario, maker of water-disinfecting systems waits for related data migration tools from Baan, said Norman Thomas, Trojan's director of information systems.

But Thomas said that BaanERP itself looks ready to go.

A friendlier user interface and expanded customer service functionality are big draws for Trojan to upgrade to the new release, he said.

But the promise of being able to break up upgrades in to more manageable chunks is also attractive. "Anybody who has gone through a major [applications] upgrade recognizes all the expense and stress that comes with it," Thomas said.

"Different parts of the business change at different rates, and it would be nice not to have to completely wipe out what everybody is doing and retrain them all at the same time," said Geoff Griebel, director of information technology at Penwest Pharmaceuticals Co. in Patterson, N.Y.□

TWA scheduling system

CONTINUED FROM PAGE 47

TWA's 2,500 pilots' requests according to seniority and factors in regulations such as how many hours in a week a pilot can fly and how much downtime they must take following transcontinental or overseas flights. Pilots can also indicate how strongly they feel about certain schedule requests, so that they don't get stuck on a flight to Kalamazoo the day of their daughter's wedding in Paris.

"We have flexibility now that we didn't even dream of before," said Mark

pays off on bottom line

Seward, the Airline Pilots' Association union representative at TWA. "Pilots can now pick from thousands of trips instead of just preset schedules."

Pilots don't have to own a home PC to use the system — they can also use computer kiosks set up just for crew scheduling at TWA hub airports.

The $1 million Preferential Bidding System is also a hit with airline executives. TWA officials said the airline hopes to save 2% on its annual $210 million payroll with the system.

"Clearly, [scheduling of this size] was a thorny problem that was more trial-and-error and experienced-based than really quantitative," said Jim Holincheck, a Chicago-based analyst at Giga Information Group. "The logistics were a nightmare for these organizations to take on."

Other airlines, including Delta Air Lines, Northwest Airlines, Belgium-based Sabena and Air Canada, also use Ad Opt systems. Andre Allaire, flight crew schedule manager at Montreal-based Air Canada, said the system has saved at least a week each month compared with the old, manually constructed schedules the airline had used.

SAVES $2 MILLION

Caleb Technology Corp. in Austin, Texas, sells a competing system for airline scheduling and counts Continental Airlines among its customers. Anna White, director of crew systems and planning at Continental, said the system was easy to justify. "We estimate [this] will save Continental over $2 million per year," she said.

The combination of pilot union satisfaction with bottom-line payoff is what airlines sorely need, Holincheck said. "For these types of companies, there's a strong need for [systems like this] because being able to optimize the people and the routes can mean big dollars to the bottom line." □

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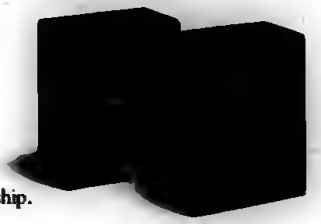

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Reconciliation

CONTINUED FROM PAGE 47

ming advisor at the firm. Much of the software logic uses nondescript tabling, which makes it difficult to easily identify where a process is being performed or where the tables are being managed, Chapman said. Version Merger helps do that, she said.

Fina Oil also chose Version Merger because it works with the system's programming environment. The online functions in the HRMS are written in IBM's CSP, and "there aren't a lot of [reconciliation] products that can work in a CSP base," Bussell said.

Last year, Fina Oil calculated that it would have taken 350 programmer days to reconcile its heavily customized HRMS 9.2 with HRMS 9.5, the year 2000-ready system, Bussell said. That would have translated into $65 per hour, or $163,000.

Version Merger cost $30,000 to license, Bussell said.

For the custom part of the code, even though Version Merger can be used to fix date-sensitive code, Fina Oil has used it only to identify what parts need fixing, Bussell said. Contract programmers will use other software tools to make changes there, he said.

Version Merger "helps us to get over the hump" to differentiate what is Integral software and what was customized by Fina Oil, Bussell said. □

SHORT

Java for financials

IBM has released Version 1.3 of its San Francisco application business components for Java, featuring a new accounts receivable/accounts payable piece that will help developers build financial applications with greater ease.

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Briefs

Most important reason for getting a wireless phone

Business and personal	34%
Security/safety only	25%
Business only	22%
Personal use only	16%
Don't know/other	3%

Base: 972 wireless phone users

Source: The Yankee Group, Boston

Sun expands Java

Sun Microsystems, Inc. in Mountain View, Calif., has announced commercial availability of Java Embedded Server, a small-footprint network server that lets users install applications on remote devices, from routers to gasoline pumps or automated teller machines.

A developer copy with one runtime environment costs $3,500.

HP upgrades

Hewlett-Packard Co. in Palo Alto, Calif., has announced upgrades based on the new PA-8500 processor to its Visualize line of Unix workstations.

The upgrade board, which costs $7,990, can be installed by the customer, works with all existing software and delivers up to a 70% performance increase compared with existing systems, according to HP officials.

Digital photo printer

Lexmark International, Inc. in Lexington, Ky., has introduced a two-in-one ink-jet printer that will let users print digital photos, as well as traditional text and graphics.

It features a built-in computer to allow for digital prints at the touch of a button, works independently of a host PC and accepts CompactFlash and SmartMedia digital camera memory cards.

The Lexmark 5770 Photo Jetprinter will be available in November and will cost $349.

Staying in touch via video

▸ *Pilot test shows savings up to $669,000*

By Nancy Dillon

WHEN Silicon Valley Bank grew from a niche start-up to a national institution worth $3.1 billion, Chief Information Officer Robert Potts had to grapple with what he calls "cultural dilution."

"People in our 15 remote branches [in 10 states] said they weren't getting the same level of service as people in our headquarters," Potts said. "We needed a tool for cultural extension."

Potts turned to videoconferencing. He said he first looked at the room-based systems used by his competitors. But he decided to test desktop video in a pilot program involving 20 loan officers split between a Massachusetts office and the bank's headquarters in Santa Clara, Calif.

Potts said although room systems are known for cutting executive travel costs, the amount his executives travel will remain the same because the company believes in "high touch" between managers and their staffs.

"What we needed was a way to expedite daily communication between remote users and the decision-making bodies at headquarters. . . . With telephone or E-mail, action items are easily left on hold. But with desktop video, you can do virtual lurking," he said.

Videoconferencing expedites communication between remote users and headquarters.

"Virtual lurking" is possible because the bank requires that users set their systems to auto-answer. That means incoming calls automatically pop up on user screens. If a user isn't at his or her desk, video callers can watch the workspace until the user returns.

"Sure there's an interrupt factor, but so far we've seen a measurable increase in efficiency," Potts said. He calculated the number of staff hours saved is worth between $153,000 and $669,000 per year for the loan-processing group that conducted the pilot test.

Christine Scholl, a senior financial analyst at the bank, said she likes her desktop system because she often has to explain pages worth of numbers to remote colleagues.

"With video, I can see when people get that glazed-over look and I should stop," she said. "And it also helps with relation-

Staying in touch, page 53

Embedded Y2K bugs rare – so far

▸ *Utilities find few flaws in power plants*

By Jaikumar Vijayan and Robert L. Scheier

EMBEDDED year 2000 problems are kind of like Elvis sightings: A lot of people say they've experienced one, but actual occurrences are hard to find.

Fourteen months before the turn of the century, information technology departments are diligently looking for year 2000 bugs in everything from elevators and coffee machines to giant electric generation facilities, not to mention security scanners and medical equipment such as ventilation systems and defibrillators.

Some early reports indicate the problem may be less serious than feared. Washington Water Power, a Spokane, Wash.-based electric and gas utility, tested 540,000 embedded components and found only 1,800 that contained year 2000 date dependencies, said year 2000 communications liaison Jay Hopkins. "Of those 1,800, only 234 have needed to be remediated," he said.

On lack of utility bugs: "Our issue is nothing like a hospital's, for instance"

Hopkins said the Bonneville Power Administration, which controls about 80% of generating capacity in the Pacific Northwest, is "finding the same thing."

But Hopkins conceded that there may be more year 2000 problems lurking in nuclear generating plants than in the older, relatively simple hydroelectric plants his utility has checked. That's partly because many hydro plants are old enough that they don't rely heavily on computers at all.

The urgency — or relative lack of it — to make embedded systems year 2000-compliant in

Embedded Y2K bugs, page 53

STRATEGIC MOVE

Sales system also reduces server count

By April Jacobs

WHEN Circuit City Stores, Inc. went looking for technology that would allow shoppers to custom-configure PCs in its stores, it chose a kiosk and thin client-based system that does more than lure in more sophisticated computer buyers. The system also promises to reduce overall support and hardware costs throughout the company.

Circuit City [illegible] client sy[illegible] phasing [illegible] than 500 [illegible] servers

The project began in October 1997 when Circuit City began a search for a cost-effective way to roll out a new PC sales application — now available in kiosks — across its 518 stores.

The Richmond, Va.-based retail chain looked at Windows

Sales system, page 52

Sales system consolidates servers

CONTINUED FROM PAGE 51

Terminal Server and MetaFrame thin client software, which it thought afforded good remote connectivity and management and would let end users access a wide range of applications, said Dennis Bowman, chief information officer at Circuit City Stores.

He said the company then realized that Windows Terminal Server would allow it to consolidate its application servers from Unix to Windows NT.

As a result, the company is phasing out more than 500 aging Unix servers with applications that will run on a single server in each store, along with the kiosk-based application for customers.

The server, loaded with a combination of Microsoft Corp.'s Windows Terminal Server and MetaFrame from Fort Lauderdale, Fla.-based Citrix Systems, Inc., can accommodate Unix, Windows 3.1 and Windows NT-based applications on one server.

SERVER CONSOLIDATION

"We go from a very expensive paradigm of having a Unix server and three PCs, each of which have their own data and applications, to one larger server that runs all the applications," Bowman said.

The retailer is looking to its new kiosks, which also run from the Windows Terminal Server/MetaFrame servers, to give customers additional choices when they buy a PC.

In addition to choosing from a limited number of standard PC configurations on the show floor, buyers can pick the features they want and order PCs from four top makers: Compaq Computer Corp., Hewlett-Packard Co., IBM and NEC Corp., via the kiosks with the help of a Circuit City salesperson.

CIRCUIT CITY STORES

STORES: 518 nationwide sell electronics, music, appliances and PCs

1997 REVENUE: $8.8 billion

PROJECT: New in-store kiosks will let consumers custom-configure and buy PCs with help from a salesperson

That will give Circuit City a somewhat unique position among electronics stores, which until now have targeted entry-level buyers with more limited offerings. Now it can compete more with computer stores and even online direct sales offered by vendors.

"People who buy their second or third computer wanted more control, and we wanted to be able to offer them the features they want," said Morgan Stewart, a spokesman for Circuit City.

From a technical standpoint, Bowman said the company chose the Windows Terminal Server/MetaFrame combination instead of Windows NT because it wanted the ability to run a range of applications from a variety of hardware, including Unix workstations, older PCs running Windows 3.1 and newer ones running Windows NT.

SAVINGS BENEFIT

Bowman said the project will reap "substantial savings," but he declined to be specific about savings or costs.

But John Dunkle, an analyst at Portsmouth, N.H.-based Workgroup Strategic Services, Inc., said Circuit City's decision to ditch its Unix servers rather than upgrade and replace them could save the company millions of dollars when training, support and hardware costs of an upgrade are taken into consideration. Even low-end Unix servers cost between $15,000 and $20,000 each, he noted. □

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Sales system consolidates servers

CONTINUED FROM PAGE 51

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Staying in touch via video

CONTINUED FROM PAGE 51

ships because I don't really travel to meet other support people face-to-face."

The bank is installing 60 additional systems in Santa Clara and a few more in four other branches. About 150 video desktops — all provided by Avistar Systems Corp. in Palo Alto, Calif. — will eventually go online at a total project cost of $2 million. The systems offer broadcast-quality, Integrated Services Digital Network-based (ISDN) (H.320) conferencing but don't require ISDN at each desktop. For LAN networking, the systems use standard copper wire.

"Desktop videoconferencing is the obvious choice for specific applications such as portfolio management, telemedicine, distance learning and legal depositions," said Al Lill, an analyst at Stamford, Conn.-based Gartner Group, Inc. "But for most corporate users, I think a basic rule of thumb is to get your group [room-based] strategy together first."

San Jose, Calif.-based Polycom, Inc., one of Gartner Group's top five room-based vendor picks, announced the ViewStation MP last week. The $11,999 system can connect up to four ISDN lines for multipoint videoconferencing with up to four remote locations. Polycom's $5,995 entry-level version offers only point-to-point videoconferencing.

John Burke, chief technology officer at San Francisco-based Walden International Investment Group, recently installed one ViewStation in his headquarters and one in a Hong Kong office.

"Our expectation is to save money on travel," Burke said. "Even if it only saves one first-class overseas trip for one person, it will pay for itself." □

Embedded Y2K bugs

CONTINUED FROM PAGE 51

corporate environments really depends on how critical the systems are to business operations, said Dan Clark, IT director at insurer Trigon Blue Cross/Blue Shield in Richmond, Va. "But our issue is nothing like a hospital's, for instance," Clark added.

Trigon officials have been dividing their embedded systems into noncritical and specialized categories over the past two years. Noncritical equipment includes copiers and VCRs; specialized equipment includes scanners for claims documents and bar-code readers in the storage tape libraries.

In each case, the departments responsible for the equipment also are responsible for contacting equipment vendors for the appropriate fixes, Clark said. Trigon has mobilized a team of 60 area coordinators from various company departments who will oversee progress in each department. The entire project is monitored by an IT-led team.

AGE IS KEY FACTOR

The amount of work that needs to be done on embedded systems also depends on how old the equipment is, said David Krauthamer, corporate director of IT at Advanced Fibre Communications (AFC), a Petaluma, Calif.-based vendor of telecommunication equipment. Generally speaking, the older the equipment, the greater the chance that a fix is needed, Krauthamer said.

AFC also has representatives in place in each department. An IT-lead team and a representative from the company's legal department periodically review the status of the remediation work.

The Seattle-Tacoma International Airport identified 115 embedded systems after an affairs committee made up of airlines that use the Washington airport raised the issue last fall.

For about a third of the systems, the equipment vendor claims to have a problem. For another third, the vendor says there is no problem, and for the final third, the vendor doesn't know or hasn't told the airport, said Burr Stewart, the airport's administrative projects director. □

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COMPUTERWORLD

Managing

By David Foote

Is your information technology staffing strategy going to the dogs? That might not be such a bad idea if you're looking for hot technical talent such as Rick and Brenda.

Back in the mid-1980s, another time when technical talent was in high demand, those two bright software engineers worked next door to me at a high-tech company. Recruiters pursued them relentlessly with promises of higher salaries. But they politely declined. Why? Because they could bring their pets to the office.

Today, as then, a fundamental principle for success in recruiting and retaining IT people in brutal job markets remains: Don't just give 'em what they need — give 'em what they want.

To attract and keep people, a company has to listen intently to its employees and do whatever is necessary, then keep listening and adapting to their ever-changing needs and desires. What's necessary in today's frantic IT labor market can be traumatic because it means changing old habits and challenging entrenched attitudes about how to manage a workforce. Being fast, flexible, cunning and creative won't hurt — but being too analytical will. Motivating the best people is often more of an intuitive art than a science. You need to use your head, heart and soul.

What follows is what I have learned from hundreds of companies I have tracked during 18 years as an IT industry analyst and management consultant. It should help you get through the next few years and then some. **Recruit with your head,** page 56

Foote is managing partner of Cromwell Foote Partners LLC in Stamford, Conn. (www.cromwellfoote.com), a research consultancy and advisory firm that specializes in IT compensation and human capital management strategies. He was a human resources professional, a Silicon Valley marketing executive, a Gartner Group, Inc. consultant, founding program director of Meta Group, Inc.'s CIO research service and leader of its IT human resources management research.

Recruit WITH YOUR **HEAD** *Retain* WITH YOUR **HEART**

CONTINUED FROM PAGE 55

RECRUITING AND RETAINING FOR THE LONG HAUL

There are plenty of tips and suggestions floating around, and some work very well — for a while. Beyond quick fixes, experience suggests that IT decision-makers must embrace the following four immutable truths if they expect to gain any real control of staffing difficulties.

1. UP TO HALF OF YOUR PERMANENT IT EMPLOYEES ARE UNABLE (OR UNWILLING) TO MAKE THE TRANSITION TO THE NEW BUSINESS-DRIVEN, SERVICE-ORIENTED IT ORGANIZATION MODELS AND PROBABLY ALREADY KNOW IT. THEY SHOULD BE REMOVED AND REPLACED WITH PEOPLE WHO CAN.

No one likes to let people go, but IT executives have privately acknowledged for years that they can't afford to keep those who don't measure up to new standards. Now that about 60% (and climbing) of total IT spending is in the control of line organizations that are under intense pressure to perform and have been long suspicious of their IT departments' capabilities, some removal of loyal but struggling IT workers is unavoidable.

Rather than dumping deadwood, your turnover will likely be a staffing reassessment and overhaul as part of a new outsourcing arrangement, merger, acquisition, alliance, partnership or broad corporate change initiative. In fact, it will have a slim chance of succeeding if it isn't one of those. Successful institutional change requires a common threat or significant event around which to rally the troops and sustain effort over time.

But even if you can afford to replace those expendable workers with full-time, hot technical skill specialists at outrageous market prices, should you do so? The deeper issues are flexibility and competitiveness. Surgical, or selective, turnover will clear the decks for a huge increase in the use of "permatemps," or temporary contractors working for extended periods, even years. Without them, few companies during the next decade will be able to shape IT workforces that can deliver the speed and agility needed to sustain success. Early adopters are struggling with the cultural changes that surround their permatemp staffing strategies, and some contractors report conflicting feelings about their status. But those pioneers will adapt and succeed, and the rest will follow suit because the business case and competitive pressures are simply too overwhelming.

Motivating the* BEST PEOPLE *to Stay is Often More of an Intuitive Art than a Science

2. THERE WILL BE NO *SUSTAINABLE* SOLUTIONS TO IT RECRUITING AND RETENTION PROBLEMS UNLESS THE TRADITIONAL HIERARCHICAL, INTERNAL AND EQUITY-DRIVEN PAY SYSTEM IS NEUTRALIZED OR ABANDONED.

Come on, does anybody really believe that IT can adopt workable models for managing modern IT careers when the most fundamental determinants of pay and advancement at most companies are still longevity, budget size and number of direct reports?

IT workers who take risks, show leadership and use creativity and initiative in finding ways to add business value must be singled out, nourished and encouraged. But those older pay systems don't easily allow for the kind of customized packaging of salary, incentives, training, benefits and other perks that suit the personal needs of top IT talent who know their value in today's marketplace. When IT career growth at a company is anchored not just in technical aptitude, but also in adaptability and quickness, innovation and imagination, tolerance for ambiguity, relationship skills and team behaviors, and understanding the subtleties of business process, the difference is amazing.

So allow fresh ideas to flourish and heap accolades and rewards on individuals and teams that get the job done and don't leave disasters in their wake. If those people are paid well and treated fairly, you will discover that pay — for them — quickly becomes secondary to the opportunity to continue doing what they enjoy.

3. STAFFING THE NEW IT ORGANIZATION REQUIRES A DELICATE BALANCE AMONG PAY/REWARD PROGRAMS, THE WORK ENVIRONMENT AND CORPORATE CULTURE. IF ONE IS CHANGED WITHOUT PROPERLY ADJUSTING THE OTHERS, YOU WILL FAIL TO ACHIEVE STAFFING NIRVANA.

It seems so obvious, yet companies will often change their work culture (for example, moving to a team-based model) but not their pay/reward programs and end up confusing and even angering their employees. Conversely, companies will change their pay/reward programs without adjusting underlying environmental aspects and end up creating bigger problems for themselves. For example, as productivity rises in response to new performance-based pay incentives, quality declines, and your new employee incentives wind up driving customers away. That's one of the reasons that simply throwing money at staffing problems will invariably backfire.

It's best to get environmental and cultural changes under way first and introduce the new pay system later. Take PECO Energy Co., a gas and electric utility in Philadelphia that let go 76% of its IT workforce in 30 months during an IT re-engineering effort. In dramatically changing its IT pay philosophy and practices, it avoided alienating its workforce by first involving the entire department in changing work processes, redesigning jobs and restructuring the organization. Once the new organization was designed and began to take shape, those who felt comfortable with the new direction they had created (and who matched well with skill and competency requirements) stayed to implement the plan under the new pay programs; those who didn't were offered attractive early retirement packages, jobs elsewhere in the company or help in finding work. In PECO and similar cases, open communications and actively engaging workers throughout the change process were critical success factors.

4. BETTER MANAGERS BEGET BETTER EMPLOYEES.

A common thread that runs through all companies that are consistently successful at attracting and retaining good workers is the investment they make in developing mentors and coaches among their managers. It shows up in many ways, but the key indicator is the amount of time and attention the CEO and other senior executives spend developing their reports. That behavior flows through the organization and gets recognized and rewarded with various incentives.

WHAT EMPLOYEES REALLY WANT

Yes, recruiting and retaining people involves pay. But money is a very weak tool for stimulating imaginative thinking and creative problem-solving. Yet it's one of the very few successful motivators of efficiency and productivity, which, until recently, were chief success measures for IT. Its overemphasis in today's market is both rewarding out-of-date values and inviting runaway avarice that's undermining morale in many IT workplaces.

Motivation is instead multidimensional. Here's where heart and soul become critical. Nearly 50 years ago, psychologist Abraham Maslow theorized a "hierarchy of human needs" to help explain how people interact with the world. Applied to today's retention problems, employees' happiness and self-fulfillment can be realized only when they are given a stable, secure work environment and healthy social interactions.

Consider that what your workers want and need — more than anything else in the world — are recognition, appreciation, empathy, a feeling of belonging, psychological ownership (of anything from an objective to a job), someone to believe in and/or someone who believes in them. When those qualities are absent; people seek other sources. Give employees the proper environment and they will blossom.

Companies with fewer problems attracting and keeping good people know how to appeal to their employees' hearts and souls in several ways. With people coming into the IT workforce today seeking much more balance and quality of life, compared with strictly career achievement, it's no wonder they are more attracted to flexible work arrangements, geographical location, family-friendly programs (such as family weekends at resorts, on-site child-care facilities and domestic partners insurance), as well as training and education that opens opportunities. The freedom to move among projects and within companies — not as technology mercenaries but as people who want more out of life than just a paycheck — is clearly in vogue. Take that seriously, and your success in handling staffing problems will be well above average.

The IT staffing crisis need not be so debilitating. Use your head to attract people with the right stuff for the job and make certain they match the culture you create. Once you have done that, go deep within to find out what they want from themselves and their employer. They'll appreciate and reward the effort. □

13 Head and Heart Suggestions

Here are some of David Foote's other ideas and strategies for recruiting and retention that he has found to be successful at nearly all companies. Make them your priorities to get back in the race or ahead of the pack.

■ **HIRE THE RIGHT PEOPLE TO BEGIN WITH.** Cultural fit is as important as skills, competencies, knowledge and experience for job success and managed retention. Educate everyone — from secretaries to senior executives — about what questions to ask for probing behavioral issues, and then encourage them to seek out good candidates wherever they go. Also, develop target profiles of jobs that need filling and distribute them companywide to help increase hit rates of informal recruiting efforts.

■ **GET NEW STAFF OFF TO A QUICK START.** The first month or two are critical to making people feel part of the organization. Assign them an interesting project right away and a mentor to look after them. Or institute a well-organized boot camp-type program that immerses hires into company culture, structure, business processes and even skill training for two to six weeks.

■ **GIVE EMPLOYEES MEANINGFUL WORK.** If you can manage to make everybody feel that their job is connected to a mission, vision or greater purpose, then job contentment is more easily achieved. That works as well with janitors as it does with senior executives. For IT workers, challenging assignments and easy movement within the company produce the most work-enriching experiences.

■ **IMPROVE THE WORK ENVIRONMENT.** Most companies grossly underestimate the contribution of bigger cubicles and offices, better lighting, more meeting spaces, better food, nicer furniture, exercise facilities and other workplace improvements toward genuine employee satisfaction. Eighty-nine percent of the 11,000 respondents to a recent survey of IT workers said atmosphere matters most to them about their work.

People** coming **Into** IT are* **SEEKING** ***Much More **BALANCE** *and* **QUALITY** *of* **LIFE**

■ **PERSONALIZE PRAISE, AUTHENTICATE SINCERITY.** People-sensitive executives and managers make sure that no meritorious work goes unrecognized. They thank staffers personally at staff meetings and with notes, post praise on bulletin boards, print compliments in newsletters and provide rewards.

■ **PAY WELL, FAIRLY AND VARIABLY.** No incentive or recognition program will stop turnover if your company's base salaries are below market rates. Collect market data at least twice per year. Don't get caught with high-priced talent when market supply/demand and prices stabilize. Structure total monetary packages by mixing base pay, deferred compensation, restricted stock and a wide variety of individual and team cash-incentive bonuses tied to performance, project outcomes and demonstrated hot skills proficiency.

■ **USE NONMONETARY INCENTIVES LIBERALLY AND CREATIVELY.** Would you knock yourself out working for a round of golf at Pebble Beach or its cash value of $350? Mix heavily publicized recognition awards with useful rewards such as flextime, telecommuting, training or stock. Offer plum assignments, work-related travel opportunities and pampering rewards such as paid leisure travel, complimentary tickets or personal care services. Regularly ask workers what they want but also seek out information about their spouses, families and significant others.

■ **PROMOTE LEARNING, INVEST IN TRAINING AND MENTORING.** Spending 5% to 7% of your IT budget, or $7,000 to $10,000 per person, on training and education to develop individuals and careers can be a huge motivator. And train on company time, or you run the risk of resentment from those protective of their leisure time. Don't be afraid of losing newly trained people if you are taking other measures to please them. If you don't train, motivated workers will be bored and leave anyway.

■ **BE AGGRESSIVE WITH HIRING PROGRAMS AND CREATIVE RECRUITING.** Pay at least $3,000 to $5,000 for a referral and subsequent hire and consider offering commissions to internal recruiters for key hires. Consider every personal and professional circumstance as a source of candidates. Cull your employment database for candidates who rejected previous offers and former employees who may wish to return. Send senior IT executives and managers out on the road to recruit. And use the World Wide Web.

■ **ENGAGE EMPLOYEES, MAXIMIZE THEIR INVOLVEMENT, AND OFFER CHOICES.** People support that which they create and will stick with you to make improvements. Psychological ownership of a job, team or objective creates a feeling of belonging that's hard to beat. Tailor to the individual or team.

■ **TREAT FORMER WORKERS AS ALUMNI WITH LIFETIME AFFILIATION.** Communicate with them regularly. Send frequently updated alumni directories and newsletters that chronicle company developments, professional achievements and personal milestones of other alumni. And host cocktail parties and events for them. Even if they never return, they are at least more likely to recommend candidates and act as ambassadors.

■ **COMMUNICATE, COMMUNICATE, COMMUNICATE.** Be open with your people. Involve them in discussions about the company and its direction and help them link their futures to the company's path. Ask them what they want, and help them get it.

■ **GO WAY OUT OF THE BOX.** You need to aim a lot higher and go out a lot farther on the limb than you think in coming up with innovative staffing ideas. That way, you're less likely to compromise yourself and end up back where you started.

RESOURCES: BOOKSHELF

By Leilani Allen

As the end of 1998 nears, most information systems managers are either deep in year 2000 testing or trying to help their companies use electronic-commerce technology.

During those rare moments when there's time for work-related reading, try a fast immersion in the network economy with Carl Shapiro and Hal Varian's **INFORMATION RULES** (*Harvard Business School Press, Boston; 324 pages; $29.95; paperback*).

The two University of California at Berkeley professors clearly have made many trips to Silicon Valley and spent countless hours on the World Wide Web. They cover almost every aspect of successful electronic commerce, including pricing, managing intellectual property rights, locking in customers and obtaining feedback. No grandiose marketing theories here, just lots of practical dos and don'ts, illustrated by brief examples.

You also can familiarize yourself with all the latest concepts from "goldilocks pricing" to "value-subtracted versions" to "log rolling." For those considering a plunge into electronic commerce, the book is a necessary prerequisite. For those who have built sites that haven't achieved expectations, here's where you might find out what went wrong.

TECHNOLEVERAGE, by F. Michael Hruby (*Amacom, New York; 240 pages; $27.95; hardcover*) goes beyond the Internet to cover an array of technologies that can provide a competitive edge.

Hruby, a consultant, uses short case studies to support his basic premise: Technology is critical in creating and holding a lead over others. The key to long-term profitability, he argues, is continued technological innovation, and Hruby offers a persuasive approach on how to achieve that.

Information technology managers should find Chapter 8 useful because it makes a strong case for constantly researching new technologies in your industry and others.

Of course, the trick is still in selecting the right technologies, and **SMART CHOICES** (*Harvard Business School Press, Boston; 272 pages; $22.50; hardcover*), a general management book, should help with that. The book is written by John S. Hammond, Ralpb L. Keeney and Howard Raiffa, who, despite being academics, have achieved their goal of creating a "practical guide to making better decisions."

Except for Chapters 7 and 8, the book is mercifully free of jargon and diagrams. Instead, the authors outline eight key steps in decision-making, the gist of which is to be proactive in defining the problem and your objectives correctly, to be creative in imaging alternatives and to be judicious in understanding the consequences, trade-offs and risks associated with those alternatives.

I especially recommend Chapters 5 and 6 on "Consequences and Trade-offs" and Chapter 9 on "Linked Decisions" because that's where most IT-related decisions usually go awry.

Although there are no IT-specific case studies, there are many illustrative examples and one continuing case problem that ties the concepts together neatly. I would like to have read a more thorough discussion of the time element in decision-making, but otherwise the book is a clear work that IT managers and others should find useful.

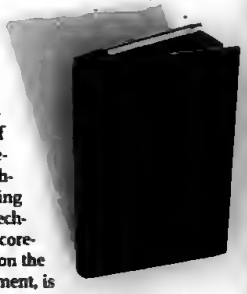
Why don't more firms do a better job of transferring knowledge and best practices throughout the corporation? A 1994 study by the American Productivity and Quality Center in Houston found that, especially in large corporations, knowledge transfer wasn't so much hampered by people hoarding knowledge as by just plain ignorance about how things are done in other parts of the company. And when knowledge transfer did occur, it took an average of 27 months.

The group's directors, Carla O'Dell and C. Jackson Grayson Jr. (with Nilly Essaides), have written a book on how to overcome the barriers found in the study. In **IF ONLY WE KNEW WHAT WE KNOW** (*Free Press, New York; 256 pages; $30; hardcover*), the authors propose a knowledge-transfer model based on customer intimacy, product-to-market excellence and operational excellence (Chapters 4 to 8).

Of most relevance to IT managers are Chapters 9 through 12, which cover the enablers to knowledge transfer — culture, technology (mostly intranets), infrastructure and measurement. Five case studies illustrate the approach, followed by a four-phase implementation plan.

All in all, it's a coovincing argument that knowledge management is a viable strategy and one most companies could implement. It's also a source of inspiration for firms whose intranets have stagnated.

O'Dell and Grayson touch lightly on measurement, but Mark T. Czarnecki at The Benchmarking Network, Inc. provides a complete overview of the subject in **MANAGING BY MEASURING** (*Amacom, New York; 288 pages; $34.95; hardcover*). Benchmarking, perhaps the last legacy of the Total Quality Management movement, incorporates much the same message: You cao't manage what you can't measure.



Io clear, straightforward prose, Czarnecki provides a step-by-step plan for implementing a measurement program. In particular, Chapter 4 provides a solid overview of various types of measurements, from venerable techniques such as flowcharting to the newer value-added techniques to corporate scoreboards. Sadly, Chapter 19, on the use of systems in measurement, is too cursory to be of much use to IT managers.

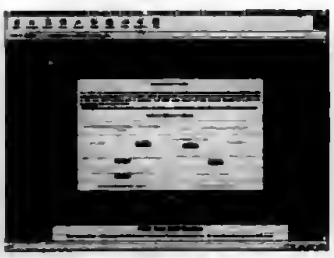
There are numerous case studies and a Sample Benchmarking Policy contained in the appendix. If your firm is considering implementing or revising its measures of performance, this book is a must read. □

Allen is a partner at Summer Point Consulting in Mundelein, Ill., which specializes in strategic planning, process redesign and technology assessment services. She can be reached at leilani@flash.net.

WEB SITES

Tick, tick, tick . . .

As time slips away to Jan. 1, 2000, you could probably use some quick information to help your company overcome the year 2000 problem.



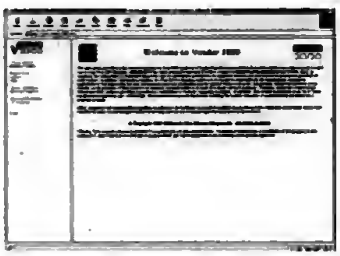
To that end, try these World Wide Web sites:

▸ THE FEDERATION OF INSURANCE AND CORPORATE COUNSEL (FICC)
(www.thefederation.org)
This site focuses on the legal and insurance aspects of the year 2000. It has a list of year 2000 lawsuits that have been filed and a section that can help your company decide whether its insurance policies will cover year 2000-related claims.

The FICC, based in Philadelphia, is a global nonprofit organization of attorneys and insurance claim executives.

▸ VENDOR 2000
(www.vendor2000.com)
Want a quick, easy way to find out if that hardware or software product is year 2000-compliant? Well, here's your site.

Vendor 2000 was launched last month by Electronic Data Systems Corp. The site will be maintained and updated daily by its CIO Services unit, the company's year 2000 compliance experts. It provides information on products from more than 3,000 vendors.



— Rick Saia

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Canon
Canon Computer Systems, Inc.

Computer Associates
Software superior by design

EPSON

ForeLogic

GoldMine
Software Corporation

hp Hewlett Packard

Inc. Magazine

intel

Micrografx

Microsoft

Tektronix

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a SOFTBANK company

Mon!

Join us at the Micrografx Chili for Children
Cook-Off & Concert COMDEX Fall 98

U2K: BUSINESS NEEDS A CUSTOMER, EMPLOYEE STRATEGY

PETER G. W. KEEN

Perhaps we'll lick the year 2000 problem. But just case things don't turn out fine, what should do?

Most non-IS people don't have a clue how to answer that question. Y2K is the computer problem. You2K is my term for how the problem could affect customers, employees, their families — real people.

Every firm must have a Y2K strategy. So obviously, every firm must have a You2K strategy, mustn't it?

The strategy might include sending recommendations to customers to photocopy business documents, go through bills to look for anomalies, call the company's special 800 number if their credit cards are declined for no reason or their three-year car warranties don't cover replacement of failed parts.

SENSING THE STRANGE

Companies could send a letter to their employees outlining the year 2000 computer problem in non-scary words, stressing that strange things may occur and offering suggestions of what to do if they see recurring patterns of strangeness in what should be routine transactions.

The letter could add that the employees will be given the same training in how to spot problems that they now get in areas such as safety. Wise banks should already be thinking ahead about how they might offer special lines of credit to customers in the event that their paychecks, Social Security payments are delayed or insurance claims are turned down.

I haven't found a single company with a You2K plan, and I've been looking hard. The Y2K-savvy part of the population and the press reports they read do address the human side of the problem. There's more focus on what I term I2K — what do I personally do as the year counter moves on from 98 to 99 and then 00. I spend a lot of thought on my own I2K — what will I do for my family, and how will I advise my friends?

I'm often asked by people of all ages, all educational levels and all income brackets how serious Y2K will be. They know something's up that could be very big indeed. But they have no idea what they should do about it.

FAMILY AFFAIRS

Take a recent conversation I had with three members of my wife's family. One is a smart consultant who has built up a tidy 401(k) nest egg and is close to retirement. He dismisses my worries and says American ingenuity will win out. I think year 2000 will hit him hard, but because none of the financial institutions, government agencies, insurers and other firms he deals with are offering advice, suggesting actions or promising help, why shouldn't he tune me out?

The two other family members are in their 20s. They are scared of Y2K, they understand what it means not to have credit cards, owe money on their car loans and really need this week's paycheck. Crystal went right to the heart of You2K. She doubts that her state government employer will be any more competent in handling the biggest systems project in the history of IT than it has been in the past 20 years. She may not know the details of Y2K, but she knows the track record of IS, because it has impacted her before. But she doesn't know what she herself can or should do, because no one in IS or the state government sees preparing and helping her as their responsibility.

Stacey zeroed in on what IT professionals largely overlooked until recently: January 2000 is mid-winter on the East Coast. She said there is no way there won't be some problems at power utilities. She worries for her family: they include people whose income is derived solely from Social Security or pensions.

My guess is that most of the truly disruptive impacts of year 2000 will be felt by the people who know least about it and can do least to repair the damage after the event: young people, the working class, retirees, small businesses, government agencies, welfare recipients, children and the medically dependent.

These are real people. They are also someone's customers.

The company that may unintentionally hurt them as a consequence of Y2K has a moral as well as business responsibility here. I also believe that any IS professional who, like me, is building a personal I2K strategy ought to find ways to contribute to You2K.

My own effort has been to set up a new Web site (*www.you2k.com*) for sharing ideas and recommendations that answer the following question: How can businesses help inoculate their customers and their families from whatever Y2K turns out to bring? □

Keen's book The Business Internet and Intranets *was published in February by Harvard Business School Press. He can be reached at peter@peterkeen.com.*

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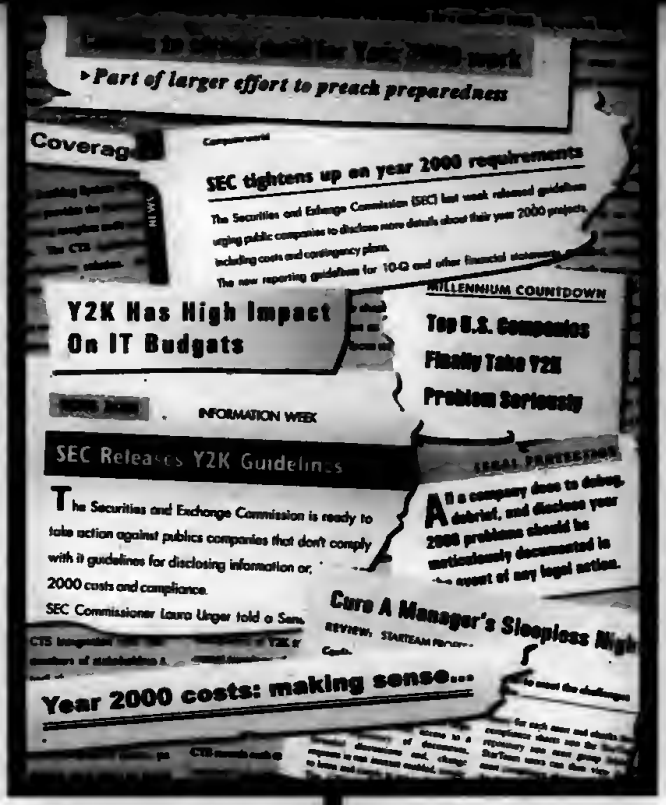
JANUARY 1 2000
WHO ARE YOU GOING TO BLAME?

Come January 2000, if you can't prove that you did everything in your reach to prevent Yaar 2000 disruptions, you will be liable. A graat solution to this problem is available now: it's called StarTeam 2000.



Will you pass the Y2K liability test? Do you **know** what was done to preveot disruptinn? Can you **prove** that you did your best? Did you apply **best industry practices?** How will you satisfy the new **SEC requirements** for disclosure and reporting?

On and after January 1st 2000, not having the right answers to the above questions could get you and your organization in serious trouble. StarTeam 2000 Compliance Tracking System provides a robust and cost effective solution for the management of Year 2000 initiatives, helping you build a self-documenting, **fully auditable repository of record** for all your compliance efforts.

StarTeam 2000 addresses your biggest Y2K challenges today:

- Managiog all compliance ioitiatives across tbe entetprise
- Creating and maintainiog documentation of all compliance efforts
- Building a complete audit-trail of your company's compliance
- Improving strategic decision makiog by increasiog project's visibility
- Shorteoing tbe project's lifecycle
- Expediting cootingency plans and ctisis managemeot support
- Allowing you to manage liability in case of business interruptioo
- Disclosing adequate information to industtv authorities, customers aod investors

If all these problems weren't enough, new SEC rules have expanded the reporting requirements for public companies. Organizations have to disclose Year 2000 costs that will have material impact on their operations. Year 2000 disclosures should include state of readiness, costs, risk and contingency plans.

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Review Center

EXECUTIVE TECHNOLOGY

NOTEBOOKS

By David Essex

You might think you're a trendsetter, tooling around airports and boardrooms with your imposing black Pentium notebook, an 8-pounder the information systems department bought you in 1996. But that isn't the case if you aren't up on the latest ultraslim notebooks — barely thicker or heavier than a paper notebook with a leather binder — and desktop replacement shoulder-benders, with their graphics accelerators, 14.1-in. active-matrix color screens, digital video disc (DVD) drives and speakers so loud they make your ears hurt. That's where the action is at today.

A lot has happened since notebooks achieved rough parity with desktop PCs in the mid-1990s. The classic size/weight/functionality trade-offs no longer run along a continuum. Instead, a few — but not altogether tidy — categories are quick guides to power and portability (see story below).

SKINNY MINI

Miniaturization has always been the game, and 1997 and 1998 may have been its golden era, thanks in part to the Internet's tendency to make local removable storage less relevant. A keyboard, screen, hard drive and modem are all you need to link to your E-mail-dependent, World Wide Web-browsing workaday world. To wit: Early this year, Hewlett-Packard Co., partnering with Mitsubishi Electric Corp., introduced the first notebook, the Sojourn, to combine a full-width keyboard and active-matrix color screen in a light, thin (less than an inch!) package — at the tolerable expense of an internal floppy or CD-ROM drive. Sony Electronics, Inc.'s Vaio 505 [CW, Aug. 17] improved on the concept by adding normal keys and an unbeatable price — less than $2,000. Now, ultraslims are a trend joined most recently in August by Toshiba's shiny-new Portege 7000 series (reviewed here).

IBM leads the technology-for-its-own-sake brigade, and its ThinkPad 770 is the multimedia machine par excellence. Own one — better yet, show a Schwarzenegger movie on one — and be the envy of your friends and enemies. Most major vendors, including Toshiba and Compaq, offer similar weight-be-damned screamers, but in recent months all three have introduced lighter versions. Compaq's Armada 7400 (see review) is a good example of that newest generation of performance notebooks.

DVD drives, which hold recordable multimedia discs, should become more common, says Katrina Dahlquist, an analyst at International Data Corp., a sister company to *Computerworld*. A new generation of 15-in. displays, some with resolutions as high as 1,600 by 1,200 pixels, will emerge. Dell Computer Corp.'s Inspiron 7000, announced last month, is a 15-in. pioneer. And a new class of so-called Jupiter mininotebooks, based on Microsoft Corp.'s Windows CE operating system for handheld devices, should debut by year's end. They're meant for E-mail and Web browsing but will lack adequate RAM, display and storage for running all of your office software.

WHICH FITS YOUR NEEDS?

If your idea of traveling is a 10-mile commute between your home and office, try a desktop replacement. You won't mind carrying 8-plus pounds short distances. Add a docking station to hook up to your office network and monitor.

Frequent travelers should stay away from high-end machines. An extra 2 to 4 pounds can feel like 50 when carried on and off planes and through airports all day. Any of the new ultraslim, wide notebooks or one of last year's small-screen, narrow-keyboard ultraportables will keep you online and let you run even the biggest applications.

COST FACTOR

You'll likely find what you need for as little as $3,000 to $4,nnn. But most vendors offer models for as low as $1,500. But stay away from passive-matrix screens (though much improved, they don't compare with active matrix for avoiding eyestrain) and watch out for skimpy configurations that drive you toward pricey add-ons. Gateway's Solo 2500LS (highlighted here) is one of the few affordable notebooks that lets you avoid such harsh compromises.

On the next page are three reviews of representative notebooks in perhaps the three most popular categories: desktop replacement, value and ultraportable.

NOTEBOOK CATEGORIES

•**PERFORMANCE/DESKTOP REPLACEMENT.** As much bleeding-edge storage, sound, graphics and display technology as can fit in a notebook, without much regard to weight. Example: IBM ThinkPad 770.

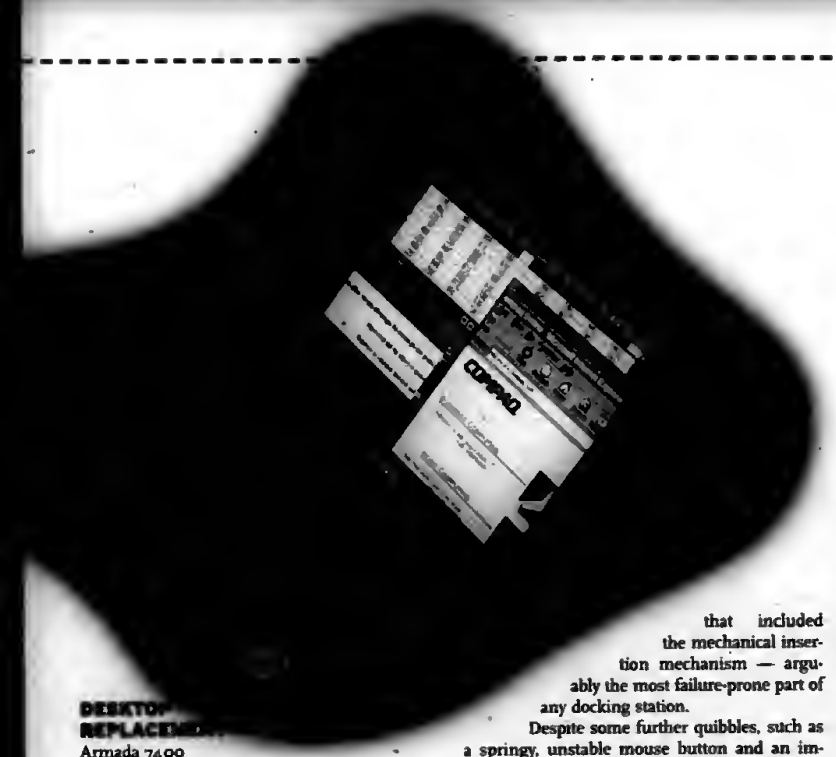
An emerging subclass makes small feature compromises to shave off a pound or a and push thickness to less than 2 inches. Example: Compaq Armada 7400.

•**MAINSTREAM.** Seeks a middle ground between the lowest weight and the highest functionality. You get built-in everything you need for normal functionality, such as an active-matrix color screen, floppy drive, hard drive and maybe a CD-ROM, only it's smaller, slower and less expensive. Example: IBM ThinkPad 560.

•**ULTRAPORTABLE** (ultraslim, mobility, thin and light). The smallest dimensions and lowest weight possible that still allow full functionality on the road. Weight is under 4 pounds, floppy drives are typically external, but screens and keyboards are full width. The vanguard of notebook technology. Examples: Sony Vaio 505 and Toshiba Portege 7010CT.

A subclass includes notebooks that achieve portability by sacrificing depth and width, resulting in scrunched keyboards and screens. A port replicator or base station may be required for a full complement of ports and drives. Example: Toshiba Portege 300.

•**VALUE** (entry level). Whatever it takes to drive the price down near $2,000, thus allowing mere mortals a chance to afford a notebook. Color screens are smaller and often employ the older, less-sharp passive-matrix technology; RAM and hard drives are slower and less roomy. Example: Gateway Solo 2500LS.



DESKTOP REPLACEMENT
Armada 7400
Compaq Computer Corp.
Houston
(800) 888-0220
www.compaq.com
PRICE: **$3,299**

A lighter, slimmer version of Compaq's top-of-the-line Armada 7800, the 6.3-pound 7400 nonetheless offers full desktop features and multimedia support at a very affordable price.

The 7400's flat, monolithic, black magnesium case conveys strength from the get-go. Inside is a 266-MHz Mobile Pentium II chip from Intel, a model introduced this year expressly for the stringent power requirements of notebooks. The 13.3-in. active-matrix screen is spacious, with 1,024- by 768-pixel resolution, though I found it to be a bit on the washed-out side. A 66-MHz accelerated graphics port provides the latest in multimedia throughput, but it is more of a future investment because few programs take advantage of it today. The 6.3G-byte hard drive and 24-speed CD-ROM drive are more than capable of handling the largest multimedia files. Despite all that high-powered circuitry, I got four hours and 20 minutes of light use from a single battery charge.

Unfortunately, you have to swap the CD-ROM drive with the floppy drive, an inconvenience necessitated by the 7400's thinnish 1.2-in. case. Be careful not to swap them without powering down because the 7400 doesn't support such hot-swapping when running Windows 95, though Compaq has an NT configuration that allows it. Like other high-end notebooks, the 7400's drive bay, called the MultiBay, accepts other types of drives, such as DVD or a second hard drive.

Modularity has been the Armada line's trademark from the beginning, and the 7400 is no exception. The notebook fits easily in an ArmadaStation II, a somewhat clunky-looking desk-bound unit with the extra drive bays, monitor stand, ports and bigger speakers you need to turn the notebook into your daily desktop machine.

Mine worked flawlessly the very first time, and that included the mechanical insertion mechanism — arguably the most failure-prone part of any docking station.

Despite some further quibbles, such as a springy, unstable mouse button and an impressive but interminable hardware configuration process (during which the system restarts a half-dozen times), I'd recommend the Armada 7400 to anyone in search of a true desktop replacement.

VALUE
Gateway Solo 2500LS
Gateway
North Sioux City, S.D.
(800) 846-2000
www.gateway.com
PRICE: **$2,249**

The early consensus leader is one of the best value notebooks out there. The Solo 2500 gets a 12-in. active-matrix screen and a faster 233-MHz Pentium II in the new LS model, which I tested. Though its 32M bytes of RAM is nothing special, the Solo 2500LS packs more features into its 6.9-pound, 2-in.-thick box than is typical of the price. Microsoft Office 97 comes bundled with Windows 98. The 4G-byte hard drive is a respectable size (though nothing like the 8G- and 10G-byte models on high-end systems); and the unit's synchronous dynamic RAM chips were designed to be faster than the Extended Data Out RAM that's common in low-cost notebooks.

The floppy and CD-ROM drives are in a single drive module, so you don't have to swap one out to have the other. The drive openings are around the corner from each other, which I find less convenient than having one above the other, as on other dual-drive units.

Gateway literature cites five-hour battery life based on tests by two independent labs, but in my own very informal test, the Solo 2500LS barely reached four hours — still impressive and enough to get you from San Francisco to Boston with the wind at your back.

The screen is bright and sharp with 800- by 600-pixel resolution, and the speakers ring loud and clear. The springy keyboard is adequate but a tad cramped in spots, thanks to a somewhat tighter layout than on the Compaq and Toshiba units.

Although its plastic case gives a hint of its low price, the Solo 2500LS is one book that shouldn't be judged by its cover. It packs enough power and performance to satisfy anyone who thinks $2,000 is still real money.

ULTRAPORTABLE
Portege 7010CT
Toshiba America
Information Systems, Inc.
Irvine, Calif.
(800) 867-4422
www.toshiba.com
PRICE: **$3,499**

In notebooks, thin is in, and among the newest of the thin is Toshiba's silver magnesium-encased beauty. At 4.1 pounds, the 1-in. thick Portege 7010CT packs more CPU power, speed, storage capacity, keyboard and display than you would expect in a machine so easy to carry.

One of the first notebooks to come with a 300-MHz Mobile Pentium II, introduced by Intel in early September, the Portege 7010CT also sports a respectable 4.3G-byte hard drive, 32M bytes of fast SDRAM and a 12.1-in. active-matrix display. Its keyboard is the smoothest and most comfortable of the three, and it comes with built-in hardware support for MPEG-2 graphics — standard on high-end units but more typically handled in less-efficient software on ultraportables.

Still, no miracles are being performed here, and you have to sacrifice built-in storage, as with any ultraportable. There are no built-in removable drives. The floppy drive, which comes standard and attaches to a proprietary port via cable, is plug-and-play reliable, which I've found to be the case on previous Toshiba ultraportables. But to get CD-ROM, you must buy the Portege 7010CT's $649 CD Network Dock, which also provides speakers and numerous ports.

If you must have the newest and the thinnest computer — and need to be seen using it conspicuously — then the Portege 7010CT is it — at least for now.□

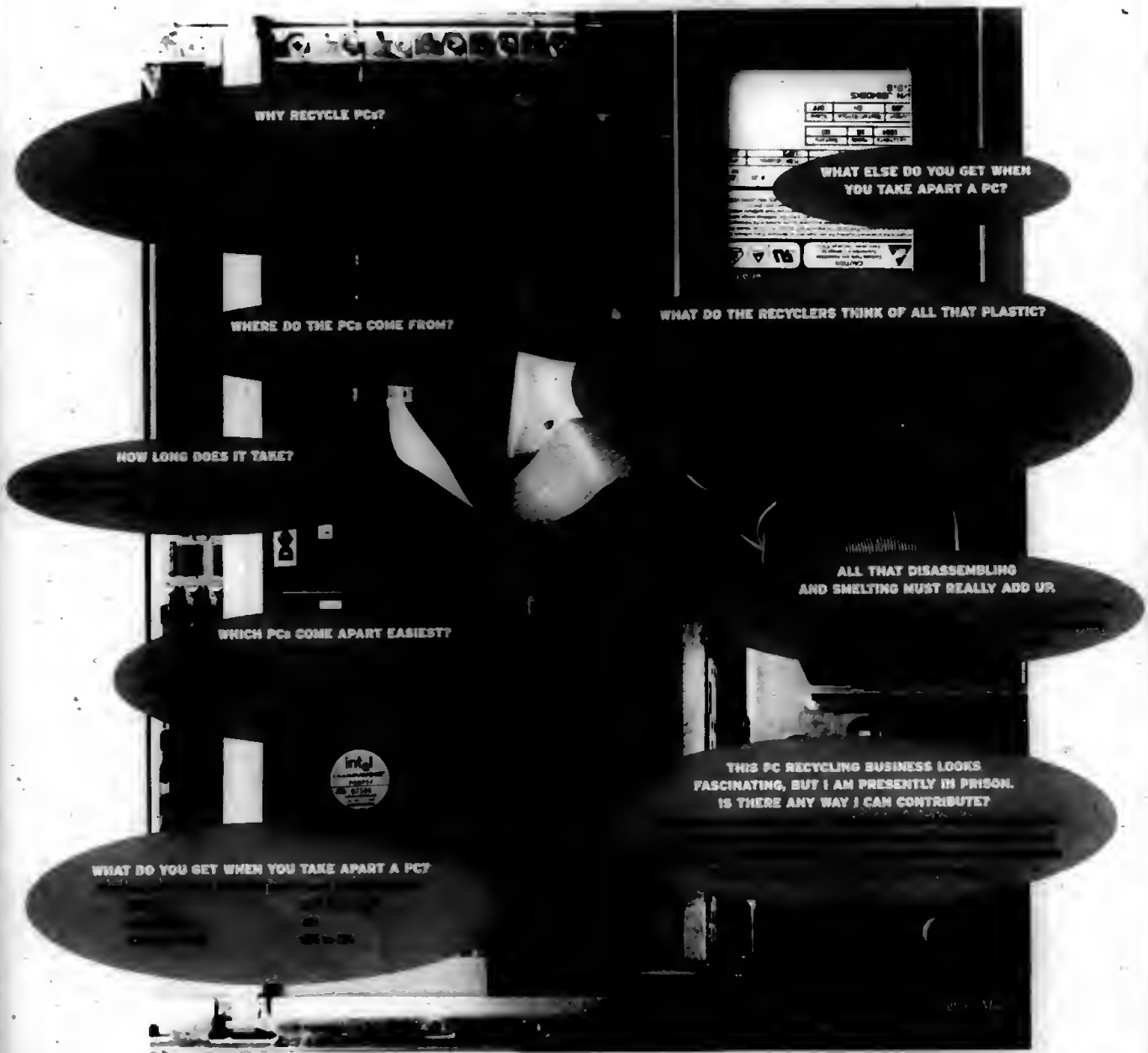
Essex (david_essex@conknet.com) is former director of reviews at BYTE *magazine. He is now a freelance writer in Antrim, N.H.*

In Depth

Soul of a Used Machine

OLD PCs NEVER DIE – AT LEAST, NOT IF RECYCLERS GET AHOLD OF THEM

BY ROBERT ISRAEL



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Tracey Claybrooke,
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10:00am **Sponsor Showcase/Coffee Break**

10:30am **Strategic Staffing in a Competitive Environment**
Carlos Echalar, Litton PRC

12:00pm **Luncheon Keynote:**
Joe Maglitta,
Industry Editor, Computerworld

1:30pm **Town Hall Forum**
Moderator Fred Rodriguez,
Mexican American Opportunities Foundation

2:30pm **Sponsor Showcase/Coffee Break**

3:00pm **High Tech/High Touch:**
Creating the Recruiting Office of the Future
Sue Keever,
The Keever Group

4:30pm **Program ends**

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Tracey Claybrooke, President, Claybrooke & Associates, Inc.
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"Learn from the experts and pick up some of the latest project management methodologies (from some of the latest projects)."

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Cohn is a freelance writer working in Atlanta — but there's always room for discussion.

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Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design, direct software system testing procedures using expertise in Erwin, Delphi 2.0, Window SDK and Interbase. Requirements: Bachelor's Degree in Computer Science or related field and one year experience as a software engineer, knowledge of Erwin, Delphi 2.0, Window SDK and Interbase. Salary: $57,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Mr. Richard Introcaso, Beaver County Job Center, 120 Merchant Street, Ambridge, PA 15003. Job No. 9088596.

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Multiple openings for software engineers to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design, direct software system testing procedures using expertise in DB2, CICS, VS COBOL II and Expeditor. Requirements: Bachelor's Degree in Computer Science or related field and one year experience as a software engineer, knowledge of DB2, CICS, VS COBOL II and Expeditor. Salary: $57,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Mr. Tom Dembosky, Indiana Job Center, 350 N. Fourth Street, Indiana, PA 15701, Job No. 5021144.

Electronics Design Engineer (VLSI) to work in a low power microprocessor design group interfacing with micro architecture and verification teams on projects. Responsible for design and development of a low power circuit/ microprocessor. Duties will include working with schematic capture, circuit simulations, and final layout verification back side bus (pad driver) design VLSI Circuit Design and Computer Architecture. Requirements are a Master's in EE or equivalent plus 6 months experience in the job offered or 6 months experience as a Design Engineer. Location of position: Palo Alto, CA. 40 hr work week; 8:15 am to 5:00 pm M-F. Salary: $61,526.40 per yr. If you are interested in and qualified for the above position, please send the ad with your resume or letter of qualifications to Job#70820017, P.O. Box 269055, Sacramento, CA 95826-9055.

Software engineer with 18 months of experience as a s/w engineer or computer professional, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, requiring supervision of other computer professionals, with 18 months of experience using SAP Analyzer s/w reqs. and performs testing and user training after development. Extensive travel and frequent relocation. Bachelor's degree in one of several limited fields: engineering, mathematics, computer science or physics. $200,000/yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 9020788, to Mr. Stan Majesky, Manager, Greene County Job Center, 653 East High Street, Waynesburg, PA 15370.

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Systems Analyst - (client sites in metro Boston, MA area). Perform systems analyses, define data management standards & concepts; undertake data modeling, coordinate projects, write SQL database programs for SQL server; use ADABAS, NATURAL. Bachs/Comp. Sci. or Engg or Math. 2yrs/exp. in job offered. Will acc. add'l 2yrs/exp. as Programmer/Analyst in lieu of Bachs deg. 40hrs/wk (9-6, M-F) $57,000/yr. Send resume in dupl to: Case #80368, PO Box #6868, Boston, MA 02114.

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How do you determine what consulting rates you can command in today's market? Consider the advice of these consulting veterans

BRIAN BAER

CONTRACTING AND CONSULTING

Savvy IS consultants have three basic methods for keeping up with rate trends: •Web sites •Word of mouth •Basic instinct

We spoke to three consultants for an inside view of how they dicker with clients and get the rates that keep them in the money *By Leslie Goff*

MICHAEL GALLAGHER, 32
Consulting since 1992
Managing partner at MGM Technology Solutions in Chicago
EXPERTISE: Systems and network administration, programming, network security, database architecture, administration and project management, Unix, Windows NT, Oracle, Sybase and Informix
CURRENT ASSIGNMENT: Jack-of-all-trades in an HP-UX and Solaris Unix environment at CNA Insurance Cos. in Chicago; a six-month contract, June to December

CW: How do you decide what rate to charge for a project?

GALLAGHER: I have a mean rate of $85 an hour that I based on my years of experience and the depth and breadth of knowledge I provide. Then that can vary based on three factors: the skills and years of experience they're looking for, the duration of the project and the location.

CW: What other factors do you consider in determining the rate for a job?

GALLAGHER: The environment and the people are about 15% to 20% of the equation.

Also, if you go through a brokerage firm, you have to know what they are getting because they will take as much off the top as they can. They should get 32% — that's the average margin now. But if you don't know what they are charging the client, they may take more. So you have to know the market, what clients in your area pay and the supply and demand.

CW: What other perks do you try to negotiate?

GALLAGHER: I want to be a 1099 and not a W2, so you have to be careful or you risk losing your tax deductions. As a 1099, you have to follow the tax rules carefully. If you get fringe benefits, like training, it indicates that you're an employee.

KALLOL HALDER, 30
Consulting since 1995
Joined Dallas-based Oracle Consulting in September
EXPERTISE: Object-oriented software development
LAST INDEPENDENT ASSIGNMENT: Developing middleware in C, C++ and Java for Capital One Financial Corp. in Falls Church, Va.

CW: How do you judge supply and demand for your skills?

HALDER: I base it on what clients are looking for. If I have five different clients interested in me as opposed to one, that gives me an idea and gives me more leverage to negotiate for more money. I keep up with what is going on in the industry — what skill sets are becoming obsolete or what technologies are making more inroads into business.

CW: Besides rate trends and supply and demand, what else do you consider in determining your rate?

HALDER: How I compare to an average person. If the top rate is $70 an hour, and the average is $50, then I go for $70. I know the satisfaction level I give to my customers, and if I'm making them very happy, then I deserve remuneration accordingly.

I don't have a fixed rate because if a job requires a skill set I already have, my rate will be higher compared to jobs that might give me the opportunity to learn new things. It also varies with the locale.

CW: Why are you taking a salaried job after three years as a consultant?

HALDER: I've reached a saturation point with my current skills, and this is a great opportunity to learn Oracle. I'll still be consulting, but I'll get to work with a broader range of customers. I hope to pick up new skill sets so that a year from now, I'll be able to charge even higher rates. It's an investment in myself.

GREG MESSER, 53
Consulting since 1992
Owner, Gregory Messer & Associates, Inc. in Oakland, Calif.
EXPERTISE: Network systems analysis and optimization
NEXT ASSIGNMENT: Currently negotiating with a large West Coast bank to do network performance management and tuning for a large distributed system

CW: How much does supply and demand for your skill set figure into the rates you charge?

MESSER: What I do is fairly unique. You don't find an army of people who do it. So a lot of the jobs I get are by word of mouth. I very rarely lose business because of my rates. And I can write my own rate because there's no comparison in the market.

CW: What other perks do you negotiate?

MESSER: I get the client to pay for my expenses. If I have to travel, I require that they pay for first class, and if they do, I don't charge them for my travel time. In coach, I can't be productive. I negotiate expenses on a per-receipt basis — car mileage, lodging, air fare, food if it's overnight. If I have to buy equipment or software to do a job, I negotiate that as well.

CW: How often do you have to compromise to get a job?

MESSER: All the time. It's not just about number of hours, it's also about defining deliverables, and there's a strategy behind that. So I compromise 90% to 95% of the time, but it's on the particulars, not on the overall dollar value.

If you're just focused on rates, you're being kind of myopic.

CW: What's the strategy behind defining deliverables?

MESSER: You go through a series of presentations, and each one will cause the proposal to change somewhat. A client will have a specific thing that they're asking for. But in the conversations, you will get some insight into their business and can identify additional services that you can sell them at the same time. So when the final proposal comes down, it usually has both their ideas and your additions in it. □

Goff is a freelance writer in New York.

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8:30am **Building an Internet Recruitment Strategy**
Tracey Claybrooke, Claybrooke & Associates

10:00am **Sponsor Showcase/Coffee Break**

10:30am **Strategic Staffing in a Competitive Environment**
Carlos Echalar, Litton PRC

12:00pm **Luncheon Keynote:**
Joe Maglitta, Industry Editor, Computerworld

1:30pm **Town Hall Forum**
Moderator Fred Rodriguez, Mexican American Opportunities Foundation

2:30pm **Sponsor Showcase/Coffee Break**

3:00pm **High Tech/High Touch: Creating the Recruiting Office of the Future**
Sue Keever, The Keever Group

4:30pm **Program ends**

Selected Sessions Include:

Luncheon/Keynote Address
Joe Maglitta, Industry Editor, Computerworld
Joe Maglitta, one of the industry's leading watchers of the Information Systems profession, will give you an up-to-the-minute view in this very special keynote address.

Building an Internet Recruitment Strategy
Tracey Claybrooke, President, Claybrooke & Associates, Inc.
As mass advertising reaches a consumer by television, radio, billboards, print media in various locations and venues - this same marketing/prospecting effort can take place on the internet to maximize your recruitment efforts. Learn about this and more in this session.

Strategic Staffing in a Competitive Environment
Carlos Echalar, Vice President of Staffing, Litton PRC
The program will address today's staffing issues from a proactive vs. reactive business approach. The program will also demonstrate a systematic 5 step approach in a full life-cycle staffing process and implementation across the business. Each step contains components and issues that need to be considered in developing and initializing a strategic plan of identifying and attracting today's top talent in an effective and cost efficient manner.

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Fred Rodriguez, Vice President of Operations Mexican American Opportunities Foundation
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GEORGIA on my mind

Forgive the pun, but IT opportunities here really are just peachy

By Jill Vitiello

GIVEN THE CHOICE between Atlanta and Savannah, shrewd Scarlett O'Hara picked Atlanta. Most information technology professionals apparently make the same decision. Atlanta is where the action is. Though there are fine IT opportunities in other Georgia cities such as Savannah and Columbus, Atlanta, the state capital and commerce center, offers the largest and most varied job market for Georgians. Here's a look at what you can expect.

ATLANTA: SOUTHEASTERN IT CONSULTING HUB

"Atlanta is an entirely different marketplace from Savannah and Columbus," says Michael S. Salet, senior partner at the Atlanta office of Romac/Source Services, an IT placement firm.

"Atlanta is the Southeastern hub for consulting services firms, including the Big Six, vendors and boutique firms," Salet says. "All these companies are vying for specific skill sets that are important to consulting: project managers with hands-on experience in Windows NT, Lotus Notes, [enterprise resource planning], SAP and other application software solutions that they provide to users."

Another skill set in high demand all over Georgia is AS/400 programming. "That's what we call liquid gold on the street," says Salet, who estimates that an AS/400 programmer willing to move to a new employer can bargain for a salary between $50,000 and $80,000. Atlanta salaries are higher than those in other cities in the state, Salet and other recruiters say. IT consultants at the service companies command upward of $100,000 per year, not including bonuses. Because they travel extensively, Atlanta-based consultants earn salaries equivalent to those paid in areas of the country where the cost of living is higher.

For IT pros seeking permanent jobs in Atlanta, the most valued soft skill is a team-oriented attitude, Salet says. It isn't uncommon for companies to invest between $10,000 and $30,000 on training new hires, he says, but in return they expect commitment and teamwork. Atlanta companies are snapping up independent contractors, too, and putting them to work on year 2000 projects.

SAVANNAH: MIDNIGHT IN THE GARDEN OF MAINFRAMES AND MODEMS

Gulfstream Aerospace, Inc. in Savannah recruits nationwide to fill IT positions in its innovative and growing department, according to Cheri Roach, vice president of IT. Right now, the world's leading manufacturer of corporate jets is searching for candidates with experience in desktop support and Windows NT as well as a help desk analyst, programmers and computer-aided design and manufacturing systems analysts on the Unix platform.

Candidates with any of the various Microsoft Corp. certifications are welcomed, too. "We offer competitive salaries, an excellent benefits package, interesting projects and a sexy product," Roach says.

IT professionals accept positions in Savannah not only for the opportunity, but also for the lifestyle the city offers, residents and recruiters say. The semitropical climate and proximity to the ocean appeal to those who enjoy year-round boating, golf and tennis. The symphony, art museum, college and other artistic and historic offerings appeal to culture buffs.

COLUMBUS: SLEEPY SOUTHERN HOSPITALITY

"A sleepy Southern town with a lot of charm," according to Salet, Columbus nevertheless attracts IT professionals from the nearby military base and those who want to enjoy a fine quality of life without commuting in Atlanta's traffic.

"Columbus is a small community environment," says David R. Still, president of ProSelect Resources, Inc. in Marietta. "I went to school in Columbus, married a Columbus girl and joined the military there." Yet as much as he likes the town, he chose to live and build his business in an Atlanta suburb, which offers a similar quality of life with greater economic opportunities.

Still says companies in Columbus end up bringing in contractors. A lot of them are seeking the AS/400 skills that other Georgia-based companies want. "Top IT jobs are being recruited for in all three cities," Salet says, "but there are different requirements in Savannah and Columbus. Those are smaller marketplaces with prominent user companies. The highest demand in those cities is for people with AS/400 [programming skills], Cobol programmers and legacy systems developers." □

Vitiello is a freelance writer in East Brunswick, N.J.

LOCAL UNEMPLOYMENT

Area	Unemployment rate
U.S.	4.5%
State of Georgia	4.4%
Atlanta	3.7%
Savannah	4.5%
Columbus	5.1%

Source: Computerworld's 1998 Annual Salary Survey, published Sept. 7

Surfin' Georgia

For an inside guide to life and work in Georgia, surf the state's many Web sites:

Metro Atlanta Chamber of Commerce
News about Atlanta
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Savannah Convention & Visitors Bureau
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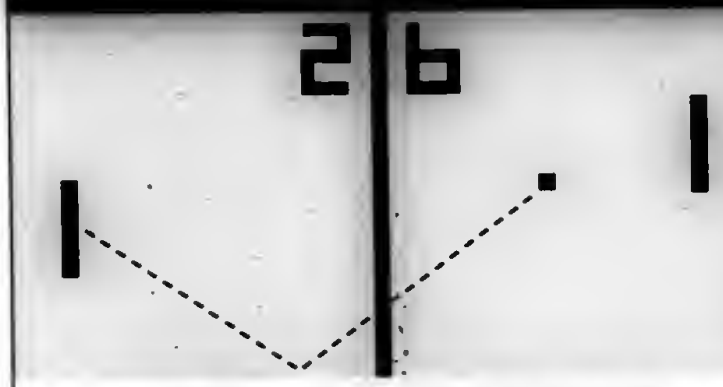

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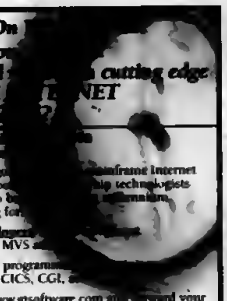

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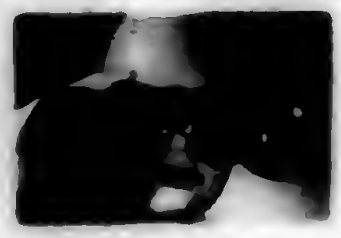

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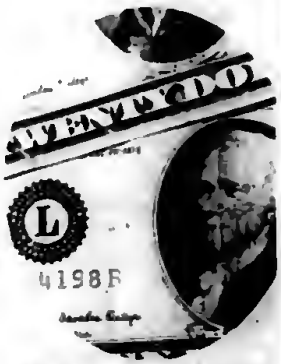

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Programmer/Analyst (Client sites in Houston, TX area) Analyze, design, develop, code, test, implement, and maintain programs for commercial and financial applications using VISUAL BASIC and MS-ACCESS. Bachelor's degree in Comp. Sci., Engineering, or Math, and 2 yrs. exp. in job req. 40 hrs/wk, 8:30am-5:00pm, $42,224/yr. Apply at the Texas Workforce Commission, Houston, TX, or send resume to 1117 Trinity, Room 424T, Austin, TX 78701. J.O. #TX0811526. Ad Paid by an Equal Opportunity Employer.

DATABASE ANALYST. Responsible for analyzing business data requirements, performing logical and physical data modeling and normalization, designing, implementing and administering physical database, administering various database on different platforms, developing database backup, recovery, integration as well as performance tuning, writing client/server application using embedded C under UNIX and Windows NT environment, assisting develop team on all phases of client/server full life cycle development process. M.S. in Computer Science + 1 year of related experience in database analyses and administration on different relational databases. Yearly salary: $47,000. Apply at Texas Workforce Commission, Dallas, Texas, or send resume to the Texas Workforce Commission, 1117 Trinity, Room 424T, Austin, Texas 78701, J.O.# TX0811207. Ad Paid by an Equal Opportunity Employer.

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Programmer Analyst: 40 hrs/wk, 8:30 a.m. - 5:00 p.m., M-F, $75,000/yr. Application design and development using ORACLE, UNIX, C++, and PowerBuilder; database setup, including installation of ORACLE; SQL, C++ coding and SQL forms coding; database tuning, security setup and data loading functions. Requirements: Bachelor of Science in Engineering or Computer Programming and two years in job offered or two years as Software Consultant. Experience in related occupation must include at least two years in ORACLE and PowerBuilder. Must have proof of legal authority to work permanently in the U.S. Send resumes to TM Floyd & Company, 6133 North River Road, Suite 440, Rosemont, IL 60018.

Chief Programmer Analyst: 40 hrs/wk, 8:30-5:00, M-F, $80,000/yr. Design, code, test and maintain databases; Relational Database design and application development; recommend design changes to the existing legacy database changes. Database environment will be ORACLE 7 and 8.0. Front end will be JAVA, Developer 2000. Software languages will be SQL Plus, JDK and C, Pro*C. Act as Project Leader on database development project. Requirements: Master of Science in Computer Science and two years in job offered or two years as Programmer Analyst. Experience must include two years in Relational Database design and application development. Must have proof of legal authority to work permanently in the U.S. Employer paid advertisement. Decision Consultants, Inc., 1700 East Golf Road, 81122, Schaumburg, IL 60173

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Senior Programmer Analyst: Design & development of client/server applications & relational database management systems (RDBMS) on UNIX & Windows 95 operating systems using C, C++, ORACLE, ERWIN, Business Objects, PowerBuilder, HTML & JAVA. Design, develop & test on-line analytical processing (OLAP) applications to enhance data processing ability of business clients. Develop OLAP & OLTP databases/models for enhancing on-line analytical processing. Develop & test meta-data for dimensional modeling using Business Objects. Create home pages through client/server applications. Operate on UNIX & Windows 95 operating systems. Consult with end-users to determine data processing needs & Oracle database design & administration requirements. Act as Lead Programmer Analyst. Up to 90 percent of work will be performed at client sites. Must have a Bachelor's degree in Computer Science. Must have two years of experience in the job offered or as a Software Engineer. Experience must include the following: ORACLE (RDBMS) design & development using PowerBuilder as front-end tool & Business Objects as a reporting tool. 40 hrs/wk, 9:00am - 5:00pm. $85,000/yr. Overtime pay exempt. Must have proof of legal authority to work permanently in the U.S. Send resumes to the ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY, 401 South State Street - 7 North, Chicago, Illinois 60605. Attention: Janet Aschenbrenner. Reference # V-9, 19143-A. AN EMPLOYER PAID AD. NO CALLS - SEND 2 COPIES OF BOTH RESUME & COVER LETTER.

Programmer Analyst needed for computer software development & consulting firm located in Chicago, Illinois. Job duties include: Analyze, design, develop, test & implement computer software applications. Consult on various computer projects & re-engineer software applications using state-of-the-art tools & techniques. Use COBOL, COBOL II, MVS/JCL, DOS/VSE, DB2, GUI guidelines, IMS, VSAM database, VS/CICS, InterTest, Xpediter, Job Scheduler and FILE-AID on IBM Mainframe in MVS/XA/ESA environment. Applicant must have a B.S. in Computer Science or Engineering and 2 yrs. exp. In the job duties described above or 2 yrs. exp. as a Programmer Analyst or Software Engineer with 2 yrs. exp. analyzing and designing computer applications using COBOL, DB2, CICS, and MVS/ESA. Applicant must have proof of legal authority to work permanently in the U.S. 40 hrs/wk, 8 a.m. - 5 p.m., M-F, $57,460/yr. Send 2 resumes to: Illinois Department of Security, 401 South State Street - 7 North, Chicago, Illinois 60605. Reference #V-8, 19134-B. Attn: Joan Sylvatus, or the nearest Dept. of Labor Field Service Office. AN EMPLOYER PAID AD.

Programmer Analyst needed for computer software development and consulting firm located in Duluth, Georgia. Job duties include: Analyze, design and develop software applications. Consult on various in-house projects and/or contract based throughout the U.S. Use JD Edwards World software package, RPG/400, CL/400, SQL/400, PDM, SEU, SDA, DBU, RLU and DFU on IBM AS/400. Applicant must have a Bachelor's Degree in Computer Science or Engineering and 2 yrs. exp. in the job duties described above or 2 years exp. as Programmer Analyst, Consultant or Software Engineer with 2 yrs. designing and developing software applications using RPG/400, CL/400 on AS/400. 40 hrs/week, 8 a.m. - 5 p.m., M-F, $58,000/yr. Send 2 resumes to: Georgia Dept. of Labor, Job Order #GA 6298413, 1535 Atkinson Road, Lawrenceville, GA 30243-5801 or the nearest Dept. of Labor Field Service Office.

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IT CAREERS MIDWEST

Position: Software Programmer. Requirement: Must have Master degree or equivalent in Computer Science. Must be proficient in C/C++, MDL, Windows NT 4.0. Duties: Develop and design the FOCUS software on the PC platform in Windows NT environment using Microstation Development Languages, implement new module design, GUI and note function to new releases; develop GIS and design software for telecommunication industry; participate in the technical support, and develop interface for database servers such as Oracle and Sybase. Salary $53,000 per year Hours: 40hours/week, 9:00 am to 5:00pm. Send TWO resumes to Georgia Department of Labor, Job Order # GA 6290431 at 1535 Atkinson Rd., Lawrenceville, GA 30043-5601 or the nearest Department of Labor Field Service Office for referral to the employer. Must have proof of legal authority to work in the U.S.

Programmer. Positions Available: 6. Provide client/server application development, internet application development, system design, system analysis, programming, and client interaction. Must have at least a B.S. degree in MIS, IS, CS, or related degree. Must be able to use: MS Visual Basic 5.0, Internet Information Server, Active Server Pages, SQL, ODBC 3.0 APIs, Internet Security, COM/DCOM Technology, IBM DB2, MTS 2.0, Netscape Enterprise Server, Netscape Directory Server, Netscape Administration Server, Microsoft Visual InterDev, Javascript, VB Script, SSL 2.0/3.0, LDAP, HTML, MSMQ ActiveX Controls, Win32 APIs, Visual C++ 5.0, and IDC/HTX. 40.0 hr/wk, $38,700/yr 8:00 AM - 5:00 PM. Applicants send resume to: Ms. Stephens Mally, 9550 Regency Square Blvd, Ste. 1000, Jacksonville, FL 32225.

DATABASE ADMINISTRATOR needed for NJ Co. Must have exp. create/maintain/monitor databases. Backup databases & create recovery procedures to rescue data loss during system/database crashes. Use IBM DB2 & 3rd party tools/utilities. Apply to Global Consultants, Inc. 601 Jefferson Road, Parsippany, NJ 07054.

PROGRAMMER/ANALYST needed by Comptr Services Co. in Edison, NJ to plan, dvlp, test & document comptr s/ware using C/C++, Pro*C & ORACLE applics incl Developer 2000 & Designer 2000 in UNIX envrnmt. Must have Bachelor's in Engineering. Respond to: HR Dept., Horizon Computers, Inc., 5 Lincoln Hwy, Edison, NJ 08820.

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Programmer Analyst, Malden, MA. Analyze, design, develop Client Server Technology Applications using Oracle, Developer 2000, PL/SQL and PRO*C. Develop Financial Applications and interface for Legacy System using Oracle Financials, Oracle Applications & Front End Tools on HP-UX Platforms and Smart Client Terminals. Req'd. Bachelors in Comp Sci. 2 yrs exp in job offered. Req'd. 40 hrs/week, 9a-4p, Mon-Fri. $52,000/Yr. Applicants should submit two (2) copies of his/her resume in response to: Case #60195, P.O. Box 8868, Boston, MA 02114.

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PROGRAMMER/ANALYST to analyze user requirements, design, develop, implement, test, and maintain application software in 2- and 3-tier client/server architecture using object oriented programming, Oracle, MS SQL Server, MS Access, ODBC API, Visual Basic, PowerBuilder, Erwin and OMT Select Enterprise under MS DOS and Windows operating systems. Require: B.S. degree in Computer Science/Engineering with 2 years of experience. Salary $65,000 per year, 8:00 am to 5:30 pm, M-F. Apply by resume to: Renga Nathan, President, Kanchi, Inc., 154 Technology Parkway, Suite 200, Norcross, GA 30092. Attn: Job DK.

PROGRAMMER/ANALYST to analyze user requirements, design, develop, implement, test, and maintain application software in 2- and 3-tier client/server architecture using object oriented programming, Oracle, MS SQL Server, MS Access, ODBC API, Visual Basic, PowerBuilder, Erwin and OMT Select Enterprise under MS DOS and Windows operating systems. Require: B.S. degree in Computer Science/Engineering with 2 years of experience. Salary $50,000 per year 8:00 am to 5:30 pm, M-F. Apply by resume to: Renga Nathan, President, Kanchi, Inc., 154 Technology Parkway, Suite 200, Norcross, GA 30092. Attn: Job YY

Programmer Analyst needed by Software Consulting Co. in W. Hartford, CT. Must have 1 yr exp dvlpg new s/ware & updating existing systms using C, Unix, SQL, Sybase database admin & ABAP IV. Masters in Comp Sci, Engg or Math required. Respond to: HR Dept. Compupower Inc, 770 Farmington Ave, W. Hartford, CT 06119.

NETWORK ADMINISTRATOR wanted F/T by IT Co in Edison, NJ. Must have 1yr exp planning, dsgng & implmtg WANs & LANs using X.25 communication protocol & T1 & ISDN lines. Masters in Comp Sci reqd. Apply by resume to: HR Dept., Job Code NA, Dynamic Decisions, Inc., 104 Sunfield Ave., Edison, NJ 08837. EOE/M/F/D/V.

Senior Software Consultant needed F/T for major news agency in NYC. Must have Master's degree in Business Admin. or Computers & 2 yrs exp dsgng, dvlpng, testing & implmtg systms in ORACLE 7, DEVELOPER 2000, PRO*COBOL, PRO*C on VAX/VMS systm. Respond by resume to: Paul Wu, MIS Dept., Associated Press, 50 Rockefeller Ctr., New York, NY 10020.

Systems Analyst, Reston VA. Analyze, dsgn & implmt applic systm. Analyze, review & alter prgms to increase operating efficiency or to adapt to new reqmts; modify existing applics to achieve performance objectives & enhance user reqmts. Identify problems & dsgn solutions. Reqd Masters in Comp Sci, Engg or Math w/ 1 yr exp. exp must incl UNIX, Windows NT, C++, JAVA & CORBA. Send resume to HRD, Digital Commerce, 11180 Sunrise Valley Dr, Reston, VA 20191

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Sr. Software Engineers needed for VA, and NJ. Must have 5 years exp. design/develop software applications using OO, C/C++, Sybase, and CASE Tools. Apply to Global Consultant, Inc. 601 Jefferson Road, Parsippany, NJ 07054.

SYSTEMS ANALYST needed F/T for Comp Services Co. Must have 2 yr exp analyzing, dsgng & dvlpng comp applics using PeopleSoft, SQR & Crystal Reports with ORACLE d/base. Bach in Engg needed. Respond to: HR Dept., Altair Consulting Group, Inc., A-2 Brier Hill Court, East Brunswick, NJ 08816.

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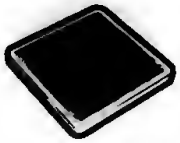

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Citrix Systems 48-49
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Compaq Computer Corp. 18-19
http://www.compaq.com

Computer Associates C2
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EARTHWEB 9
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Micrografx 59
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Platinum Technology 24
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StarBase 61*
http://www.starbase.com

Tiffany 54*

3COM 25
http://www.3com.com

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The Week in Stocks

INDUSTRY ALMANAC

Market jitters

Jittery investors, grumbling about the Federal Reserve's weakest interest rate cut and worried about global recession, dragged down all the major indices last week. The New York Stock Exchange composite (down 7.48 points Thursday) and the Nasdaq Stock Market (down 43.49 points Thursday) continued a slump. And the Dow Jones industrial average, which on July 17 hit a record 9337.97, closed at 7731.91 on Oct. 8 — 233 points below this year's start.

Even the blue-chippers of the tech world — IBM (NYSE:IBM), Microsoft Corp. (Nasdaq:MSFT), Dell Computer Corp. (Nasdaq:DELL), Cisco Systems, Inc. (Nasdaq:CSC) and Intel Corp. (Nasdaq:INTC) — have seen losses during this turbulent period (see chart).

So, is it time to buy? Analysts vary.

Not yet, says Ed Nicoski at Piper Jaffray, Inc. in San Francisco. Such technology companies are still priced near their historic highs, says Nicoski, who says he expects more price drops. "This [stock dip] has nothing to do with the quality of these companies' products or management," Nicoski says. "They are momentum stocks, affected by the economy. This is the nature of the bear market."

Mark Edelstone at Morgan Stanley Dean Witter in San Francisco says he is more upbeat. For the long-term investor, "it's a great time to be buying high-quality stocks" such as Intel, Cisco and Microsoft, he says.

Michael Goran, at the Pershing division of Donaldson, Lufkin and Jenrette Securities Corp. in New York, says the five blue-chippers are good long-term investments. "The flight to quality earlier this year caused these stocks to be driven up unjustifiably," he says. "They now seem fairly valued."

Analysts never expected the stocks to go as high as they did earlier this year, Goran says. He adds that prices have slipped to a point where they should stabilize.

— Laura Hunt

BARGAIN PRICES?

Some analysts say it may be time to buy leading tech stocks

	52-week high		52-week low		Oct. 8
Cisco Systems	69 15/16	8/25/98	32 15/64	10/27/97	46 15/16
Dell	69 1/4	9/28/98	17 1/2	11/12/97	48 1/16
IBM	138 1/8	7/31/98	88 1/8	10/28/97	123 3/8
Intel	95 1/8	2/24/98	65 9/16	6/3/98	78 1/16
Microsoft	119 1/8	7/17/98	59	12/24/97	91 3/16

Exch	52-Week High	52-Week Low	Range	Oct. 9 '98 Net Change	Oct. 9 '98 Pct Change
NASDAQ 100					
COMS	38.75	22.94	3 COM Corp	26.56	3.81	12.6
ANT	54.94	30.13	ANDERTECH Corp (H)	51.63	-0.13	-0.3
ASND	55.00	32.00	Ascend Communications	41.69	2.00	5.0
T	60.50	43.00	AT & T	58.44	-0.63	1.1
BNYN	13.38	2.13	Banyan Systems Inc	2.94	0.03	1.0
BEL	53.00	37.38	Bell Atlantic Corp	50.25	1.38	-2.1
BLS	82.75	65.25	Bellsouth Corp (H)	78.75	0.94	1.2
BMET	22.75	9.38	Bindview Development	11.13	2.25	16.8
CS	33.38	0.63	Cabletron Systems	8.63	2.00	18.8
CCBM	21.88	3.50	Centurion Communications (L)	5.63	1.00	-25.0
CSCO	30.75	10.38	Cisco Systems Inc	49.00	7.94	13.5
CMNT	6.38	3.38	Computer Network Tech	4.00	1.31	24.4
CNCX	41.00	7.88	Concentric Network Corp	17.25	1.31	3.1
FORE	28.00	9.25	FORE Systems Inc. (L)	9.38	-3.06	24.5
GRC	7.25	2.00	General Datacomm Inds (L)	2.19	-0.63	-22.2
GTE	64.38	50.38	GTE Corp	58.44	-2.00	3.5
LU	108.56	36.19	Lucent Tech	62.25	1.56	-2.4
MADGF	8.75	1.75	Madge Networks NV (L)	2.75	0.50	18.2
WCOM	67.88	26.38	MCI WorldCom	43.50	1.25	2.8
METM	5.25	0.84	NetManage Inc (L)	1.00	-0.00	5.6
NTRX	1.000	0.63	Network Corp	0.50	0.00	0.0
NCSI	13.75	5.00	Network Computing Devices	5.63	-0.06	1.1
NWR	30.63	8.00	Network Equipment Tech (L)	8.00	1.13	-13.5
NN	80.38	15.50	Newbridge Networks Corp (L)	13.38	1.25	7.5
NT	69.25	58.69	Northern Telecom Ltd (L)	58.81	2.25	7.2
NOVL	13.88	6.81	Novell Inc	10.00	-0.88	7.4
ODSI	11.94	1.00	Optical Data Systems Inc	4.00	0.13	3.2
PCTL	11.94	4.75	Picturetel Corp (L)	5.25	-0.81	13.4
OPEN	3.50	0.38	Proxicom Inc	0.88	0.13	12.9
RADS	29.38	5.81	Radiant Systems Inc	5.81	0.94	11.9
VRTL	10.13	1.00	Retix (L)	2.00	0.00	0.0
SBC	63.63	50.00	SBC Communications (H)	61.38	1.00	3.6
SOA	27.94	11.75	Scientific Atlanta Inc. (L)	11.00	-0.00	-0.5
SHVA	14.00	2.38	Shiva Corp (L)	2.91	1.03	-26.2
PON	80.15	48.75	Sprint Corp	74.50	1.13	5.3
QWST	47.00	22.00	QWest Communications Int (Inc: 29.75	5.50	15.0
SMSC	16.38	4.63	Standard Microsystems Corp (L)	5.13	1.75	-25.5
USW	58.00	36.88	U S West Inc.	53.38	0.81	1.5
XIRC	37.25	0.63	Xircom	10.19	1.94	0.0
XYLN	31.31	0.63	Xylan Corp	11.31	0.38	1.4
ZAMB	4.31	1.00	ZAMBA Corp	1.50	-0.50	25.0
S&P 500						
AAPL	63.75	12.75	Apple Computer Inc	31.00	1.19	3.4
CPQ	30.13	23.15	Compaq Computer Corp	25.56	-4.13	-13.9
DELL	69.25	17.69	Dell Computer Corp	57.00	10.94	17.2
GTW	80.75	25.00	Gateway 2000 Inc	46.38	4.69	-9.5
HWP	82.38	47.00	Hewlett Packard Co. (L)	59.13	1.94	3.4
MLHI	18.25	6.63	Micron International Inc	15.00	-0.69	-5.2
NIPNY	63.88	31.00	NEC America	34.00	1.75	5.4
SGI	17.81	7.38	Silicon Graphics (L)	7.88	1.19	13.1
SUNW	54.17	30.58	Sun Microsystems Inc	41.38	-2.44	5.5
NYSE						
DGN	27.19	7.88	Data General Corp	10.00	-0.31	3.0
IBM	138.13	88.63	IBM	125.38	2.00	1.6
MDCD	0.63	0.25	Meridian Data Inc. (L)	0.25	-0.31	-30.0
NCR	58.38	23.50	NCR Corp	40.13	1.00	2.7
PMCM	10.63	3.00	PhotoCom Technology Inc (L)	4.25	-0.38	-11.2
SQNT	27.56	5.75	Sequent Computer Sys	5.81	1.94	25.0
TXIN	6.00	2.00	Texas Micro Inc (L)	2.13	-0.38	15.0
SIEA	10.00	29.44	Symbios Computer Inc	33.00	1.75	6.0
UIS	30.00	11.13	Unisys Corp	19.63	3.38	0.3
AMEX						
ADBE	52.00	23.38	Adobe Systems Inc	44.00	0.75	0.6
AMSWA	34.50	7.94	American Software Inc (L)	5.94	-0.38	-22.5
APLX	10.25	2.00	Applix Inc	2.63	0.13	-4.5
ARDT	3.38	0.63	Ardent Software	1.63	1.38	70.6
ARSC	46.38	8.88	Arts Corp (L)	11.13	6.75	37.8
ADSK	51.13	21.00	Autodesk Inc (L)	34.00	1.31	3.2
BMCS	60.25	27.00	BMC Software Inc	44.00	-0.00	10.1
BOOL	26.00	16.38	Bindo and Baggage (L)	16.38	-6.44	28.0
BDNT	10.00	6.13	Business Objects (L)	9.75	1.00	16.1
CATN	8.50	0.13	Cartesian Software Inc.	0.22	-0.00	12.5
CNTP	3.00	0.00	Centurion Software	1.13	0.00	0.0
CHKPF	30.00	13.50	Checkpoint Software	15.50	-6.75	33.3
COGNF	30.38	15.00	Cognos Inc. (L)	17.25	0.75	4.3
CA	61.94	28.00	Computer Associates	51.19	1.69	10.6
CPWR	63.00	23.63	Compuware Corp	42.25	7.00	15.7
CSRE	9.81	3.50	Consensus Inc	5.13	-0.63	16.7
COSFF	4.44	1.00	Corel Corp	1.91	-0.34	15.1
DBTI	4.00	1.50	Database Technologies Inc (L)	1.63	-0.38	18.8
DCTM	59.63	10.63	Documentum Inc	26.38	10.38	-28.0
FILE	32.88	3.69	Equinox Corp (L)	6.75	5.88	-46.5
FRYE	15.13	2.75	Frame Software (L)	2.97	-0.22	-6.9
GPSI	80.88	60.38	Great Plains Software Inc	13.75	-0.00	19.2
HUMCF	54.25	15.00	Humanscope Cayman Ltd	15.00	-0.38	-2.0
HYSL	53.25	12.13	Hyperion Solutions Corp (L)	10.88	1.44	7.8
INIC	80.00	8.88	Information Resources (L)	7.25	5.88	-43.7
IFMX	10.44	1.50	Informix Corp.	4.00	-0.53	11.8
INPR	12.19	4.94	Inprise Corp	5.31	-0.75	12.4
INGR	34.19	5.38	Intergraph Corp	5.81	1.00	15.3
LEAF	4.00	0.75	Interleaf Inc	0.81	-0.19	30.8
INTU	67.94	26.25	Intuit Inc (L)	39.50	5.25	7.6
JDEC	49.38	24.00	J D Edwards Co.	30.94	-4.81	-13.3
TLC	52.81	11.38	Learning Co. (The)	18.75	1.44	7.1
MANU	80.38	0.13	Manugistics Group Inc	7.16	1.84	20.5
MAPS	14.25	0.38	Mapinfo Corp	11.84	1.11	10.9
MATH	4.38	1.75	MathSoft	2.00	-0.38	15.8
MENT	12.38	5.44	Mentor Graphics (L)	6.50	0.50	7.1
MFGY	60.63	13.25	Micro Focus (L)	16.13	1.75	12.5
MCSI	14.88	6.75	Micrologic Inc	8.38	-0.75	0.2
MSFT	118.63	58.00	Microsoft Corp	95.38	-9.13	8.6
OBJS	9.50	0.44	ObjectSpace, Inc.	1.00	-0.22	17.1
OMTL	15.00	1.50	Omnitel Ltd (L)	2.50	-0.63	-20.0
ORCL	57.75	17.75	Oracle Corp	23.81	-2.19	-8.4
PMTC	30.31	0.50	Parametric Technology (L)	9.13	1.06	-8.9
PSFT	57.44	19.75	Peoplesoft (L)	23.19	0.13	0.5
PTEC	18.38	5.00	Phoenix Technologies (L)	5.88	-0.31	-5.1
PSQL	27.25	6.00	Platinum Software (L)	7.94	1.38	15.9
PLAT	54.31	9.00	Platinum Technology (L)	10.94	-4.63	-29.1
PROS	28.13	12.63	Progress Software Corp	22.44	3.81	14.5
RNBO	60.13	10.44	Rainbow Technologies Inc	33.00	0.50	4.0
RSDB	10.13	1.30	Rio Bravo Systems Inc (L)	2.88	0.00	0.0
ROSS	8.40	3.00	Ross Systems, Inc.	3.50	-0.31	-11.1
SAP	60.13	49.69	SAP AG (L)	58.00	2.50	7.1
SCOC	4.81	2.38	SCO Inc	3.25	-0.00	1.9
SDTI	42.75	5.44	Security Dynamics Tech (L)	8.41	-4.34	-40.4
SSW	32.81	15.25	Steltec Software Inc.	24.25	-2.25	-8.5
SDRC	29.00	7.50	Struct Dynamics Research (L)	8.19	-4.81	-70.5
SYBS	23.63	9.00	Sybase Inc. (L)	6.91	-0.91	15.6
SYMC	32.63	8.88	Symantec Corp (L)	8.00	-2.06	18.6

Exch	52-Week High	52-Week Low	Range	Oct. 9 '98 Net Change	Oct. 9 '98 Pct Change
SNPS	47.13	24.38	SynOpsys	31.25	-0.25	-0.6
SSAX	11.88	3.63	System Software Assoc.	5.88	0.94	19.5
SYSI	10.75	0.88	Systemsoft Corp (L)	0.44	-0.00	17.6
BAANF	55.50	17.00	Tot Baan Co (L)	17.00	5.38	24.4
TRUV	5.19	0.75	Truevision Corp	0.94	-0.13	11.8
VIAS	54.63	2.75	Viasoft Inc (L)	3.94	2.50	99.4
VSIO	30.38	14.88	Visio Corp (L)	17.00	-4.50	-20.9
WALK	60.44	5.25	Walker Interactive Systems	6.38	1.38	18.8
WALL	10.25	10.75	Wall Data Inc.	14.19	-0.44	3.0
WANG	32.69	15.38	Wang Laboratories Inc (L)	15.44	3.66	30.2

Note: Intersolv Inc acquired by Micro Focus.

AMZN	107.00	21.13	Amazon.com	69.13	21.31	19.5
AOL	140.50	52.00	America Online	87.00	15.75	15.2
ATHM	57.25	18.00	At Home Corp	36.19	3.13	11.8
EDFY	22.13	4.88	Edify Corp	6.00	-0.38	7.7
XCIT	53.38	0.94	Excite Inc	30.88	7.13	18.6
SEEK	45.00	1.13	Infoseek Corp	10.50	-4.19	17.0
LCOS	33.63	9.81	Lycos Inc	27.19	-4.88	14.9
NSCP	68.50	14.88	Netscape Comm Corp.	19.31	1.63	17.3
NSOL	58.00	31.75	Network Solutions Inc	29.56	0.69	22.7
ONMT	49.13	4.25	Onsale Market Inc (L)	5.00	-4.25	-48.1
PEGS	31.00	9.00	Pegasus Systems (L)	9.50	1.00	16.9
PSIX	31.94	4.25	PSINet	10.00	-2.81	-31.0
QCEX	3.00	0.25	Quarterdeck Corp	0.41	-0.03	7.1
SCUR	15.25	6.38	Secure Computing Corp	9.38	1.13	10.1
SPYC	19.38	6.88	Spyglass Inc.	8.88	1.75	15.1
YHOO	194.63	17.13	Yahoo! Inc	108.69	14.31	11.8
S&P 500						
AMD	31.63	12.75	Advanced Micro Devices	14.56	-4.00	21.5
ADI	30.63	12.00	Analog Devices Inc (L)	14.50	-1.19	-7.8
CBUS	13.75	5.56	Cirrus Logic	5.88	-0.00	-1.1
CY	15.63	5.50	Cypress Semiconductor Corp	9.31	-0.63	-7.0
INTC	95.63	55.66	Intel Corp	81.38	1.13	3.7
LSCC	69.50	19.75	Lattice Semiconductor (L)	40.19	-4.00	18.8
LSI	30.44	10.63	LSI Logic Corp (L)	11.31	0.75	-6.2
MCRL	46.69	31.38	Micrel Semiconductor Inc	29.50	0.41	1.6
MU	38.94	20.06	Micron Technology	31.44	1.13	3.5
MOT	75.19	50.38	Motorola Inc (L)	66.81	4.63	31.5
NSM	42.88	7.44	National Semiconductor (L)	8.11	1.13	12.2
RMBS	71.88	25.50	Rambus Inc	54.75	5.31	8.8
TXN	91.25	39.63	Texas Instruments	70.00	-0.88	1.7
VLSI	37.50	6.00	VLSI Technology (L)	6.88	-0.94	12.0
XLNX	66.00	25.38	Xilinx	35.38	1.81	5.3
NASDAQ						
ADPT	94.13	3.88	Adaptec Inc (L)	8.00	0.06	5.3
APCC	38.50	22.13	American Power Conversion	24.38	1.25	5.5
ANDA	2.50	0.66	Andataco Inc	0.88	-0.19	23.1
CNEAF	29.38	7.88	Creative Technology Ltd (L)	8.19	-0.00	-2.3
RACE	9.38	0.50	Data Race Inc	1.25	-0.25	-16.7
DTAI	13.00	7.88	Datakey Corp	10.00	1.56	-8.9
EMC	63.38	23.50	EMC Corp	47.50	-4.25	-8.5
EMLX	19.75	5.31	Emulex Corp	11.31	-2.19	16.2
ESCC	35.88	11.63	Evans and Sutherland	12.50	0.13	1.0
EXBT	12.75	4.50	Exabyte (L)	5.50	1.00	18.6
HSFD	4.50	0.56	Intelligent Info Systems (L)	0.44	-0.05	-5.1
IOMI	16.75	2.94	Iomega Corp (L)	3.00	-0.00	18.3
KMAG	21.75	2.00	Komag Inc (L)	2.38	-0.69	22.4
MTSI	31.00	10.88	Micro Touch Systems Inc	12.63	0.25	2.0
MTIC	17.00	5.31	MTI Technology Corp	5.00	1.13	18.4
AQM	23.00	2.25	QMS Inc	3.06	-0.00	18.8
QNTM	41.13	10.88	Quantum Corp	13.75	1.31	-8.7
RDUS	6.38	0.88	Radius Inc (L)	0.88	-0.13	12.5
SEG	40.63	36.13	Seagate Technology	23.75	-0.66	-3.8
SOSI	41.38	1.06	Storage Computer Corp (L)	1.13	1.38	55.0
STK	51.13	30.13	Storage Technology (L)	23.00	1.19	4.8
TER	48.19	13.69	Teradyne Inc (L)	26.94	-0.81	-2.2
WDC	42.75	7.56	Western Digital Corp (L)	8.19	1.69	19.1
XRIT	116.50	88.19	Xerox Corp	66.00	3.31	3.9
AMEX						
AMSY	34.38	18.25	American Mgmt Systems	22.75	-0.88	1.6
ANLY	38.38	19.00	Analysts Int L (L)	23.25	1.25	-5.1
AUD	60.44	47.38	Auto Data Processing	70.81	2.38	3.5
CATP	38.38	14.63	Cambridge Tech Partners (L)	17.38	2.38	12.5
CEN	64.50	35.25	Ceridian Corp	50.38	6.00	10.1
CDO	23.25	12.44	Compucom	13.25	-0.50	4.9
CPU	38.00	11.25	CompUSA Inc	11.75	3.00	-23.9
CHRZ	53.38	30.38	Computer Horizons	21.75	3.38	-14.5
CSC	34.38	33.63	Computer Sciences	53.38	5.13	10.8
TSK	45.00	21.25	Computer Task Group (L)	24.38	2.94	10.7
EGGS	29.13	4.88	Egghead Discount Software (L)	5.53	1.00	-24.8
EDIS	30.88	29.38	Electronic Data Systems Corp	11.81	0.19	-0.6
ICO	39.63	14.63	Imation Corp	20.63	2.94	16.7
KEA	20.94	24.00	Keane Inc	31.25	2.94	-8.6
MICA	29.63	10.00	Micrografx Inc	10.00	1.25	-11.1
PAYX	52.00	22.44	Paychex	42.00	3.25	7.2
PMS	48.38	28.81	Policy Management Sys (L)	30.50	4.44	12.3
REY	54.00	12.63	Reynolds and Reynolds	16.81	-0.06	4.9
SAPE	64.00	23.88	Sapient Corp	59.38	0.88	3.2
SCBI	14.75	5.38	SCB Computer Tech Inc (L)	6.44	-0.81	-11.2
SDC	40.38	35.50	SEI Corp	36.00	5.50	-8.8
SMS	69.50	40.06	Shared Medical Systems (L)	55.19	-0.66	-9.7
SSPE	24.25	10.75	Software Spectrum Inc	12.75	-2.75	17.7
SDS	63.00	21.69	Sungard Data Systems (L)	38.38	-0.31	1.2
SYNT	39.88	3.69	Synetic, Inc	18.25	-0.13	-0.7
VST	16.75	7.13	VanStar Corp	8.13	-0.88	-0.9

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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Outsourcers

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Lincolnshire, Ill., to handle everything from putting together a standard software package that could be loaded on users' machines to discarding thousands of cartons from new PCs.

Similarly, Sun Healthcare Group, Inc. in Albuquerque, N.M., recently hired Vanstar Corp. to execute a $30 million project that includes deploying new PCs and standard desktop software to 10,000 users.

Previously, Sun had been handling new software deployment in-house. But rapid business expansion forced the nursing home operator to turn to outside help. And earlier this month, Philadelphia-based Cigna Corp. contracted with Entex Information Services, Inc. to migrate about 18,000 user desktops and 1,000 servers to Windows NT and Windows 95 operating systems. The project spans 170 Cigna sites.

Now, analysts expect even more firms to follow suit, marking a big departure from the way they handled migrations as recently as two years ago.

The cost: anywhere between $50 and $500 per user, depending on the level of services.

BOOM TIME

In 1996, only 31% of companies brought in outside help on technology migration projects. This year, the number is 50% or more, said Julie Meringer, an analyst at Forrester Research, Inc. in Cambridge, Mass.

Speed is the primary driver.

"Once it's agreed that a system will work, you want to go quickly and have everyone standardized fast," said Steve Clancy, an analyst at Dataquest in Lowell, Mass. "Some of these service companies have 3,000 people on staff. Over a weekend, they can throw 600 people on a user's project."

At one point, Vanstar was working at 18 different Sun Healthcare sites on the same day, said Sherry Gray, Sun's director of customer service. This year, Sun acquired two nursing home chains with more than 100 new facilities, she said.

"When you have an acquisition, you have to bring them up quickly," Gray said. "You want them on your systems and your processes. There is no way we could have done that."

Lower costs are also pushing users to look outside for help.

Vanstar, which sells its services on a fixed-time, fixed-price basis, said it typically undercuts users' in-house project estimates by 30% and can complete a project in half the time.

Most providers offer a range of per-user prices, depending on the services a firm orders.

"If it's as simple as plugging in a PC and disposing of the carton, the price can be $50," said Wayne Bock, vice president at Alternative Resources. At the high end, a company can pay a per-user price of $500 per month for everything from the initial technology installatioo to ongoing software support and help desk services. □

TROUBLE AT THE MALL?

In a recent survey of retailers on the year 2000:

- **Only 24% of retailers have upgraded critical merchandising, inventory accounting and financial management systems**
- **Just three out of 17 suppliers surveyed have established a Web site where customers can find information and help on year 2000 compliance**

Base: 1,150 retailers

Source: National Retail Federation, Washington, in conjunction with Kearns, Inc., Boston

Exec leads SAP project

CONTINUED FROM PAGE 1

The job was complicated by the fact that SunAmerica, a Los Angeles-based financial services firm with $52 billion in assets, was on a tight seven-month rollout based on SAP AG's rapid deployment scheme for R/3.

The 37-year-old Nakabara — who originally was going to manage only a piece of the project — also missed out on early meetings with SAP consultants brought in to help with the installation of R/3 for finance applications such as accounting and purchasing.

And SunAmerica didn't have backups in place to take over some of Nakabara's regular duties of managing accounts payable, expense reimbursements and other payments for the company's financial unit.

Nakabara, vice president of cash services at SunAmerica Financial, had to declare a two-week time-out to take stock of the situation and put together a project plan. "We got off to a really rough start," Nakabara said in an interview at SunAmerica's accounting offices 36 floors above Los Angeles' Avenue of the Stars. "We were already 10 yards behind, which was hard to recover from."

In fact, SunAmerica's go-live date for R/3 — being installed for year 2000 compliance and to make financial reporting easier for the company's users — has slipped from this month to December or even January.

But that "is not a disappointment to me," said Scott Robinson, senior vice president and controller at SunAmerica. "We're well within our drop-dead date. And the bottom line is that we can see the light at the end of the tunnel."

The delay stems in part from last-minute configuration changes being made to prepare SunAmerica for 20 upcoming acquisition by New York-based insurer American International Group, Inc. The $18 billion deal was agreed upon in August and is due to be completed in the next few months.

TOO MANY DIRECTIONS

But SunAmerica's IT department also underestimated the complexity of building interfaces among R/3 and 18 mainframe applications that will still run other parts of the business, Robinson said. And IT managers were pulling programmers from the R/3 team to fix problems on the existing applications, a situation that led Nakabara to call in his bosses on the business side.

"We knew going in that this would be a hard project" because of the ad hoc way Nakabara's team was put together, Robinson said. "But Roy is not easily frustrated. His emotions are pretty level, and he keeps his finger on the pulse and communicates [when problems arise]."

The IT executives finally were persuaded to hire contractors to fix the mainframe applications, freeing up SunAmerica's programmers to focus on R/3.

Morale and employee retention are other big issues that confronted Nakabara.

Employees assigned to the project are working long hours, including some seven-day weeks and holiday weekends. And the business users on the team "could easily go out and double their salaries" by taking other jobs, Nakabara said.

To help retain workers, SunAmerica put together a bonus plan that kicks in when R/3 goes live and again three months later, Nakabara said. He also has tried morale boosters such as taking the team to Los Angeles Dodgers baseball games and a driving range.

And Nakabara doesn't have the luxury of worrying only about R/3: About 25% of his time still goes to his business job. "There are a lot of things that just suck you back in," he said. For example, he has had to deal with auditors from Arizona who are doing a regular examination of SunAmerica's life insurance units.

That kind of balancing act is hard to pull off because running a packaged application project is a full-time job all by itself, said Steve Bonadio, an analyst at Hurwitz Group, Inc. in Framingham, Mass.

And for companies preparing to install R/3 or other packaged applications, up-front planning is a key to keeping things on track, Bonadio added. "You can't just slap a bunch of people together and expect an R/3 project to go smoothly." □

Y2K provides wake-up call to retail industry

By David Orenstein

RETAILERS HAVE recently awakened to the value of IT investments. But the loudest wake-up call — the year 2000 problem — will take center stage when retail chief information officers and IT workers gather in Denver next week for the Retail Information Systems Conference.

"If you mess up the year 2000, you won't have to worry about the other things," said Cathy Hotka, vice president of information technology at the Washington-based National Retail Federation, the industry trade group that organizes the annual conference. "The year 2000 is, at this point, the biggest IT project [retailers] have. If it isn't, it probably should be."

YEAR 2000

Morton Mease, director of planning and technology services at Montgomery Ward & Co., said most big retailers are on track to be year 2000-compliant by the end of this year, but small retailers are lagging. Mease will present the industry's newly released year 2000 best practices guidelines, with an eye toward educating smaller companies.

For its part, the Chicago-based national department store chain has used a team of four vendors to fix 25 million lines of code by year's end and is reserving most of next year to deal with possible surprises.

Betty Smith, director of IT operations at Guess, Inc. in Los Angeles, said retailers need to not only grapple with fixing their in-house systems, but also gather more information about the systems of other retailers, direct suppliers and other industries and government.

Guess, which is both a manufacturer of clothes and an operator of 150 retail stores, is 75% finished with its own year 2000 remediation. The firm also is working on contingency plans. With roles as both a supplier and a retailer in different supply chains, the company's business will depend on the readiness not only of other retailers, but also of banks and even the oil industry, Smith said.

Although the year 2000 is the hottest issue, it hasn't completely engulfed the industry's IT staffs, Hotka said. She said retailers are warming up to the benefits of electronic commerce, data warehousing, supply-chain management and store management, but now they face hurdles such as a lack of standards and difficulty attracting IT workers.

Traditionally, retailers haven't spent much on IT, creating a perception among potential workers that the industry isn't as desirable as others, she said

But according to *Computerworld's* 1998 salary survey, retailers pay above-average salaries for almost all IT jobs. □

Web selling *isn't* cheap

CONTINUED FROM PAGE 1

of expansion — adding a server is still faster and cheaper than opening a new store — to drawing new customers and boosting overall sales. And many firms on the Internet would still disagree that the Web is as expensive as other channels.

But experts caution that electronic commerce isn't for the faint of wallet. "The cost of technology and the cost of marketing have both gone up more than people expected," said David Pecaut, a senior vice president at The Boston Consulting Group in Toronto.

"It's not as inexpensive as everybody had hoped and dreamed," said Judy Neuman, vice president of interactive media at Eddie Bauer, Inc. in Redmond, Wash., where site upgrades and support costs are proving substantial. "Launching the Web site is the least costly part of this business."

According to a survey of about 100 electronic-commerce sites conducted by the Boston Consulting Group for the trade group Shop.org, marketing and advertising costs are soaking up about 43% of total revenue. And customer-acquisition costs are about $34 per consumer.

In contrast, marketing and advertising costs are 14.2% of revenue for department stores and 7.3% for specialty stores, according to National Retail Federation numbers for 1996.

AHEAD OF THE GAME

If electronic commerce were a static industry, "this would look like a very foolish proposition," Pecaut said. But in a high-growth, high-stakes industry such as Internet selling, "you have to invest ahead of the curve," he added.

The 1-800-Flowers site needs two major rebuilds each year to keep pace with Internet technology changes, Iucalano said, as the industry gets more sophisticated about everything from quick response times to navigation and personalization. In contrast, physical-world stores need major upgrades every three to four years.

Then there are the enormous costs of trying to catch consumer attention. Marketing partnerships with top Web destinations such as Yahoo, Inc. and America Online, Inc. run into the millions. Last week, for example, SportsLine USA, Inc. said it would pay out $23 million during three years for a deal with America Online that gives SportsLine the right to provide branded content on AOL, as well as promote merchandise.

And once deals are done, valuable staff time is needed to manage them and devise new looks and promotions for each partner site. "It takes an enormous amount of time and energy," Neuman said. "You've got to give it some fresh twist."

Nevertheless, she said she is happy with other Web retailing cost savings. Eddiebauer.com is pulling in revenue equivalent to about eight to 10 brick-and-mortar stores while employing just nine people. One real-world store has a staff of about 25.

Another bonus: About half of the buyers at Eddiebauer.com are new to the company.

"I'm willing to pay for that," Neuman said.

Disney Online is now equivalent to about eight brick-and-mortar stores — and well-poised for expansion, according to Chuck Davis, senior vice president of electronic commerce at Buena Vista Internet Group, Disney Online, Inc. And when Disney Online is at the equivalent of 50 physical stores, "I've got the same head count," Davis said. "It's a better model on the increment. ... It's hard to say that it really costs less. I think it costs differently."

Brick-and-mortar stores pay more for human capital and store expenses such as leases, furnishings and so on. Online stores have more technology, marketing and promotion costs — "especially right now in these early years," Davis said.

And that's one crucial point, electronic-commerce proponents said. Huge investments in attracting customers now can pay dividends for years, said James O'Neill, chief operating officer at Garden Escape, Inc. Comparing Internet with physical-world retailing depends on where in the Web cycle a firm lies: in the initial, high-investment stage, or later, where it reaps rewards of earlier work.

Despite all the costs, 1-800-Flowers doesn't appear to be sorry for moving into electronic commerce. In fact, Web surfers now account for 12% of all of the company's sales and bring the company more than $30 million annually. "We are really happy with how fast the E-commerce part of our business has been growing," Iucalano said. □

SEND IN THE ACCOUNTANTS

Online companies find expenses chew up a bigger portion of their revenue than at their brick-and-mortar rivals:

ONLINE COMPANIES	1997 REVENUE	EXPENSES AS A PERCENT OF TOTAL REVENUE
Amazon.com, Inc.	$147.8M	39%
CDNow, Inc.	$17.4M	77%
Cyberian Outpost, Inc.	$22.7M	38%
N2K, Inc.	$11.3M	215%*
Onsale, Inc.	$89M	16%
REAL-WORLD COMPANIES	**1997 REVENUE**	**EXPENSES AS A PERCENT OF TOTAL REVENUE**
Barnes & Noble, Inc.	$2.8B	20%
The Home Depot, Inc.	$24.2B	20%
Musicland Stores, Corp.	$1.8B	30%
Wal-Mart Stores, Inc.	$118B	16%

Expenses include sales, general and administrative costs
* *Expenses were $24.3M*

Source: Company financial reports

Sun

CONTINUED FROM PAGE 1

ous non-core Java specifications. They will pay a nominal fee to participate.

PricewaterhouseCoopers will ensure that Sun and other participants follow the steps in the process being established — from specification to conformance testing of technologies, sources said.

"There has been confusion in the industry about how the process works. The confusion has created some controversy, and we're trying to fix that," said George Paolini, Sun's vice president of marketing.

Companies in the expert working groups will be able to participate in parts of the Java specification that interest their companies. For instance, a database vendor might like to be involved in the Java Database Connectivity (JDBC) specification but not in others.

Several companies already have been involved in the process. Novell, Inc. participated in the Java Naming and Directory Interface, and IBM helped shape the Java Transaction Service. But Sun's new plan will better spell out the ways that companies can join the group.

"I think this is going to move [the Java standardization process] to a more public forum," said Bill Hostmann, director of enterprise solutions for Java application server maker GemStone Systems, Inc. in Beaverton, Ore. "It's moving further out of the operational control of Sun and more into the hands of the expert working group."

"I think, as Java becomes more important to the whole industry, it's good Sun is moving [to make] it more open and auditable," said Java licensee Greg Kiessling, president of Java tools maker KL Group, Inc.

Licensee companies not involved in one of the spec groups would also be given a more formalized process for submitting input to the standardization process, sources said.

As the company submitting Java as a standard to the International Standards Organization, Sun must develop and maintain the Java specs under a process that allows broad participation by interested parties.

But several key licensees, including HP and IBM, have bristled at Sun's control, particularly as Sun juggled its dual and conflicting roles of standards shepherd and money-making vendor selling products based on those standards.

HP, for instance, has a huge stake in the embedded device market with its printers. So HP elected to develop its own virtual machine to interpret Java code for embedded systems rather than wait for Sun's implementation. Meanwhile, HP's enterprise server division is working with Sun, and announced last week it will license Sun's performance-boosting HotSpot virtual machine and Java Development Kit 1.2.

Sun plans to post the details of the plan to a private licensees' World Wide Web site this week, sources said. Paolini said Sun hopes to make a formal announcement of the Java standards process in the next three or four weeks.

Sun's move to create a mechanism for involving Java licensees found support among that group. "It solves the issue of an audit trail and a well-defined process," said one conference call participant who asked not to be named. □

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Dispatches & pages from the fringes of the electronic frontier

You know about thin clients. You've heard of wearable computers. Seattle-based Inread, Inc. has developed a wearable, mobile thin client that interacts with application servers on a wireless LAN. A headset lets warehouse clerks hear stock-picking instructions and give voice commands. A bar-code scanner is optional.

Millennium madness

The Stevens Register Web site (*www.sy2k.com*) lets year 2000-compliant companies register and show potential investors that they're in good shape for the millennium. So far, there are only 21 organizations listed, from Phil's Lock Service in St. Johnsbury, Vt. — nice going, Phil! — to The Royal Bank of Canada.

Some folks are heading for the hills, learning self-reliance skills and stocking up on supplies in case the millennium bug shuts down the delivery of food, water and fuel. For that sort of contingency planning, check out *www.y2ksupply.com* and the shop-at-home service *www.y2ksupplies.com*.

Dublin's efforts to beat the millennium bug have caused traffic problems, the BBC reports. Engineers upgraded the computer system that controls traffic lights in the Irish capital to handle the year 2000, but the software was locked in a fixed timing sequence that didn't accommodate rush-hour traffic.

CD-ROM case stays front and center

Ever lose the CD-ROM jewel case on your cluttered desk? Computer accessories maker Kensington Technology Group in San Mateo, Calif., offers the "Now Playing" CD storage unit with an up-front slot that holds the case of the CD you're currently using. The unit stores 11 CDs and costs $5.99.

THE FIFTH WAVE *by Rich Tennant*

© Matt Rich Tennant at the5wave@tile.net

"It's a Weber PalmPit Pro handheld barbecue with 24 BTU, rechargeable battery pack, and applications for roasting, smoking and open-flame cooking."

Inside Lines

Financial [illegible] plans and new employees

[illegible] is adding its bell to [illegible] Bond — and managing Oracle Applications Users Group. When the independent [illegible] of Oracle's packaged applications [illegible] customers a free grain bank, Howell assured the [illegible] for attending attendees from that fast-growing [illegible] Bay Bonanza while has split those registrations to a minimum, and officials are warning that attendance at the conference, which starts Oct. 25, will be relatively light.

Time [illegible] software this way, but don't like it

Microsoft is [illegible] many of the issues that are part of its [illegible] Certified Professional program. Starting in January, many of the computer-based exams will include software [illegible] in which candidates execute a scenario and attend to what [illegible] that time, Microsoft will incorporate what it learns [illegible] in which the number of correct answers determines which questions you get. So if you're on a roll, the exam will skip [illegible]; a two-hour exam might take as little as 75 minutes.

Equal Time is Double Time

Last week, Computerworld printed a letter from Hokinson VP of Information Services Tony Del Duca, who claimed that six to eight hours per day would [illegible] productivity. We thought he was kidding, since competitor Pepperidge Farm has released results of a study of workers at companies such as Netscape, Gillette, Staples, Eddie Bauer. The study shows that twice-weekly afternoon cookie breaks featuring Pepperidge Farm's Chocolate Chunk cookies boosted workplace morale and productivity by 50% or more. When asked how to improve the breaks, respondents suggested offering milk.

Equal Time II: Hookin' Up

Turns out there are dueling petition drives on the Web for people tired of reading about the Clinton-Lewinsky sex scandal online. Along with the "Censure and Move On" effort at *www.censure.org*, former presidential candidate Ross Perot has his own drive, dubbed "Impeach and Move On," at *www.pact.org*. Either way, Congress likely won't be looking at any petitions until January, when the House and Senate return from recess.

Rumor mill

Lotus plans to bundle live streaming multimedia servers and players from RealNetworks with Lotus Notes and Domino, starting with a rebuilt for Version 4.6 customers. . . . Stratford, Mass.-based NetSmart Systems this week should announce its AppScout application flow monitor, which provides Unix and Windows NT network managers real-time views of application flows across enterprise networks.

Overheard

Ken Holmlin, Wacky Wallcoiller hucketer and Web entrepreneur: "The worst fun thing to do with your money is to lose it yourself." . . . David Cushow, former Viacom CIO and current IS chief at Ingram Micro: "The trick of management is finding people with the right demons." . . . Analyst Herm Boucher, on companies willing to be locked in to a single vendor's products: "Never underestimate the power of a lot of stupid people working in the same company."

Compaq executives had answers to most questions thrown at them by anxious users of Digital Equipment products at last week's DECUS show in Los Angeles. But when one user asked what plans Compaq had to attract fresh young talent to the aging "bunch of geezers" that represents the OpenVMS workforce these days, even Compaq Senior VP Jesse Lipson was stumped — mostly. "Short of a fountain of youth for all you geezers out there, I don't know," he joked. News editor Patricia Keefe stays young following up the tips and tidbits you send her way. E-mail her at patricia_keefe@cw.com or call (508) 820-8183.

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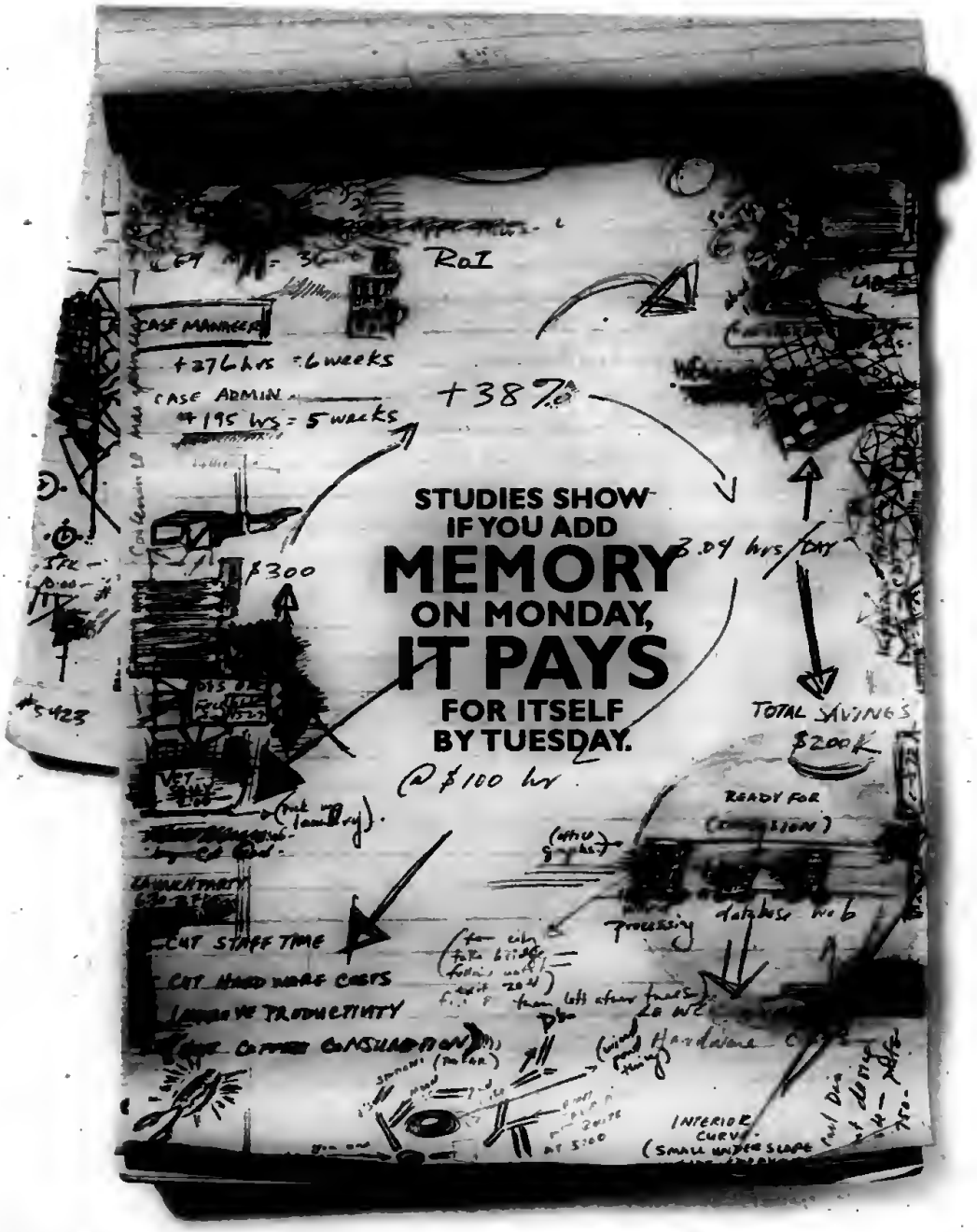

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